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ABSTRACT

This is a report of a conference called for the purpose of exploring evolving trends in nursing education and the implications of these trends for support of research training for nurses. The conference discussed the following issues: (1) If the doctoral study is in nursing, how can the research emphasis be retained? (2) Is there a nursing science? Is it sufficently developed to grant a Ph.D. degree in nursing? (3) How can a balance between clinical nursing and clinical research be achieved within a Doctor of Nursing Science degree? The 4 background papers presented at the conference are included in Part II of the report (HS)

ED057734

# FUTURE DIRECTIONS OF DOCTORAL EDUCATION FOR NURSES

*REPORT OF A CONFERENCE*

*January 20, 1971 Bethesda, Marylana*

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# FOREWORD

The Conference on Future Directions of Doctoral Education for Nurses was called for the purpose of exploring evolving trends in nursing education and the implications of these trends for support of research training for nurses through the Division of Nursing, Bureau of Health Manpower Education, National Institutes of Health, a component of the Department of Health, Education, and Welfare.

Federal support of education for nurse investigators began in 1955 with the initiation of the Nurse Research Fellowship Program. At that time persons wishing to conduct nursing research usually prepared themselves by doctoral study in such disciplines as anthropology, education, psychology, sociology, anatomy, biology, and physiology. The nurse scientists thus trained were able to correlate their knowledge in the two disciplines, nursing and a basic science, to help develop foundations for a science of nursing.

Since that time, however, several schools of nursing throughout the country have developed doctoral programs in nursing disciplines.

The Nurse Scientist Graduate Training Committee, which reviews applications for funding of graduate training for nurses, wished some guidelines on what the best type or types of doctoral preparation for nurses should be and how such doctoral preparation would affect the program of the Division of Nursing in that area.

The Division of Nursing invited a group of about 25 nurse educators, research investigators, program directors, and deans of schools of nursing to meet with members of the Division and the Nurse Scientist Graduate Training Committee. The group met at the National Institutes of Health on January 20, 1971. The meeting was chaired by Dr. Joseph Matarazzo, Chairman of the Research Training Subcommittee of the Nurse Scientist Graduate Training Committee. The conference discussed the following issues: (1) If the doctoral study is in nursing, how can the research emphasis be retained? (2) Is there a nursing science; is it sufficiently developed to grant a Ph.D. degree in nursing? (3) How can a balance between clinical nursing and clinical research be achieved within a Doctor of Nursing Science degree?

We are grateful to the dedicated members of the Conference who addressed themselves so ably to the task at hand. The comments and suggestions of the group are summarized in this report, which was prepared by Mrs. Leora Wood Wells. We feel that this report will provide valuable informal guidelines not only to us in the Division, but also to planners, administrators, and faculty in many nursing education programs.

Jessie M. Scott

Jessie M. Scott
Assistant Surgeon General
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# PART 1

## Conference Overview

## BACKGROUND AND PURPOSES

The purpose of the Nurse Scientist Graduate Training Program, as initially conceived, was to increase the research talent of nurses by funding their doctoral level education in disciplines other than nursing which provide concepts and data bases potentially useful in nursing practice. Nurses with baccalaureate degrees receive tuition, fees, and maintenance stipends to help support full-time Ph.D. study in such disciplines as anthropology, psychology, sociology, anatomy, biology, and physiology. In addition, support is given to the school of nursing to defray other costs of this doctoral level education. Special Predoctoral Research Fellowships have also been available through the Division of Nursing since 1955.

The conference on Future Directions of Doctoral Education for Nurses was assembled by the Division of Nursing at the suggestion of the Nurse Scientist Training Committee. After almost a decade of experience with these training grants, members of the Committee were concerned about discrepancies between current guidelines for funding and the types of applications that are being received. A trend toward more flexibility in doctoral education for nurses to permit different types of emphasis is becoming apparent. Under existing guidelines, the Committee has not been free to respond to this broader range of requests. This therefore seemed an opportune time to explore the directions that nursing wants to take and the ways in which Federal funding can and should influence these directions.

In recent years, attitudes toward health care and toward nursing education have changed, and priorities have shifted. The purpose of the conference was to explore current and future trends in doctoral education for nurses and their implications for the directions the Nurse Scientist Training Program should take in the future.

Four of the participants were asked to prepare background papers to be circulated in advance to the rest of the conference group as a stimulus to their thinking about issues they wished to discuss during the meeting. Three of these presenters had served in a similar role at a 1965 conference held under the auspices of the Frances Payne Bolton School of Nursing of Case Western Reserve University. Their contributions thus provided a measuring stick of the progress made during the succeeding years.

Dr. Joseph Matarazzo presented an historical perspective of doctoral education and its implications for doctoral training in nursing. Dr. Martha Rogers discussed the Ph.D. in Nursing, Dr. Rozella Schlotfeldt discussed the Ph.D. in a science basic to nursing, and Dr. Florence Erickson discussed the clinical doctorate in nursing. These background papers are included in full as Part II of this report. Highlights from them and from the related remarks of these participants during the conference are given in Part I, since they served as a springboard for much of the discussion which followed.

The informal structure of the conference permitted a great deal of spontaneous discussion. This ranged over five major topics.

These were:

- assessing nursing education needs;
- the pluralistic approach to nursing education;
- the research component in doctoral level education;
- expanding the Nurse Scientist Graduate Training Program;
- individual and institutional funding.

The comments of the participants about these topics are summarized in the second half of Part I.

As the conference closed, Dr. Matarazzo and Miss Scott expressed their appreciation for the papers prepared in advance of the meeting and for the excellent interchange of ideas during the discussion. In assembling this group, they said, the Committee and the Division did not seek or expect a set of ironclad recommendations. The conference was scheduled as one part of a process of rethinking and exploration of ideas. It served as one of several sources of input that will help to introduce new concepts and influence future directions of doctoral education for nurses.

## HIGHLIGHTS OF THE PRESENTATIONS

The four presenters drew on their background papers, using them as a base for key points they emphasized in their oral presentations. This section contains both highlights of the background papers and the issues the presenters underscored at various times during the conference.

### Historical Perspective of Doctoral Education

Nursing tends to look upon itself as a relative newcomer among the professions and learned disciplines, said Dr. Joseph D. Matarazzo, Chairman of the Department of Medical Psychology of the University of Oregon Medical School. Actually, it falls somewhere along the median; because doctoral education in this country did not get its real start until the early decades of this century. The same issues of doctoral education that have been and are being debated in nursing in recent years have also been under discussion in many other professional fields.

Most people have a sort of intuitive notion that doctoral education started about 1600. This is not really true. Today's academic degrees are an outgrowth of the trade guilds and teaching guilds which flourished in Europe during the Middle Ages and the university level doctoral degrees they soon spawned. However, it was many centuries before medicine and other professions and scientific disciplines also adopted the title of Doctor. In the United States, from the founding of Harvard College in 1636 to the Civil War some 200 years later, the only degree which could be earned was the Bachelor of Arts. This country's scientists could not obtain doctoral level training in America but had to seek it in Europe.

During the second half of the 19th century, a few colleges expanded to include graduate studies. The first earned Ph.D.'s were awarded at Yale in 1861. Numerous professional associations were formed and, as part of the process of upgrading the educational programs leading to the M.D., D.D.S., and L.L.B. degrees, these associations persuaded State legislatures that professional services of various disciplines would be enhanced by licensure or certification. However, strong standards were lacking.

By 1900, about 50 universities in the United States were offering doctoral study, but there was little quality control. The Ph.D. degree was awarded even at some of the best universities after only 2 years of post-baccalaureate study. It was not until 1935 that a fairly standardized model for Ph.D. doctoral education was established. During this same period and on into the late 1940's, various accrediting bodies were developed which helped to stabilize quality standards for the Ph.D. and other doctoral degrees.

During the past 50 years, much spirited and sometimes acrimonious debate has taken place in faculty councils and professional societies about the pattern of training required to prepare people to enter various scientific disciplines. There is still far from universal agreement even among leaders within a single discipline.

One key issue has been whether the Ph.D. should be a degree primarily awarded to people trained as research scholars in the traditional arts and sciences or whether it should also encompass preparation of college teachers and advanced professionals in other fields. The fact is that the Ph.D. is now a degree given in virtually all fields of learning, whether the recipients plan to embark upon careers in science, scholarly writing, teaching, professional practice or administration. Although degrees other than the Ph.D. are also awarded in a variety of disciplines, the Ph.D. continues to be preferred by most students, faculties, and leaders in scientific disciplines.

As is true in most academic and professional disciplines, there is little consensus in nursing on the appropriate doctoral degree for that profession. In 1969, some 25 different degrees were being awarded to nurses by colleges and universities. Among these are four types of doctorates in nursing: the Doctor of Nursing (D.N.), Doctor of Nursing Science (D.N.S. or D.N.Sc.), Doctor of Nursing Education (D.N.Ed.) and Doctor of Public Health Nursing (D.P.H.N.).

Some nursing leaders have favored granting the Ph.D. degree in nursing with a minor in a relevant discipline such as physiology or sociology. Others have felt that the nursing Ph.D. should be the ultimate goal but that nursing science was not sufficiently developed to make this practical immediately. Instead, they have suggested either a Ph.D. in some other discipline with a minor in nursing or a strictly professional degree like the D.N.S. Making a distinction between the academic degree (Ph.D.) and the professional degree (Ed.D. or D.N.Sc.), they felt that the nurse with a Ph.D. in a cognate discipline would help to generate new knowledge and the nurse with a D.N.Sc. would apply this new knowledge. Offering the Ph.D. in a discipline other than nursing would, they felt, insure quality until the research and scholarship in nursing itself had developed more fully.

Whatever the degree structure, Dr. Matarazzo said, nurses who have gone on to achieve full stature as researchers and members of a learned profession should not, in his opinion, be referred to exclusively as nurses. An M.D. who specializes in genetics is seldom called a physician; he is usually called a geneticist. In our society and many parts of the world, the term "nurse" means a diploma-school educated RN. Nor is "nurse scientist" adequate. No term will serve permanently. People change and evolve as they move on in their careers, so whatever name is chosen will apply only during an interim period in the development of the individual.

One possible identifying term for the graduate with a Ph.D. in nursing might be "behavioral biologist." The baccalaureate and doctoral level curricula of such nurse scientists typically consist of a core and advanced courses in biology and sociology as well as nursing, and nursing tradition has always stressed the emotional-social-behavioral aspects of human functioning as well as the physiological aspects. The adjective "behavioral" before "biologist" acknowledges these elements associated with nursing.

Doctoral level nursing education is at a new juncture today. It has evolved through a pattern that has differed less from that of other professions than is commonly assumed. The first American nurse to earn a doctorate received her Ph.D. in psychology and counseling in 1927. Colleges and universities began to establish programs in nursing leading to the baccalaureate degree as early as 1909. By 1945, 46 colleges and universities offered advanced programs in nursing; and by 1946, two of these were involved in the doctoral education of nurses.

The rapid upgrading of educational preparation of nurses in the United States since that time has been dramatic. Over 600 nurses now hold earned doctorates in some field. Although bachelor-level personnel continue to predominate in nursing, as they do in the similarly evolving fields of engineering and social work, a cadre of doctoral-level professionals is well on the way to being established.

Yet there is a strange hesitancy in nursing about plunging into doctoral education in a big way, Dr. Matarazzo said. Since nursing is at least as robust in terms of educational substance as other professions, why this hesitation? The early doctorates offered in this country in philosophy, physics, and natural science were much weaker than the doctorates nursing could offer today. There is no lack of curricular substance, no lack of money, no lack of brains, and no lack of dedicated leadership.

What, then, are the problems?

As he sees it, Dr. Matarazzo continued, there are two principal reasons for this reluctance to move ahead. One is self concept. The other is the over-romanticized view nurses have of the whole scientific enterprise.

It is the self concept of nurses which will determine when the Ph.D. in nursing is a quality degree--not the mythical stage of the development of the science of nursing. Who is to say when the empirical and theoretical foundations of knowledge in nursing are adequate for a substantive Ph.D.? In his own opinion, Dr. Matarazzo indicated, a faculty with a nucleus of 5 to 10 nurses with Ph.D.'s, all of whom are vigorous, some of whom are nationally visible, several of whom have research under way and whose research is being quoted by other investigators, more than constitutes a critical mass for a Ph.D. in nursing that would be as robust as fully half the so-called "hard" Ph.D. degrees being offered by all disciplines in this country.

Nursing could have offered a Ph.D. degree as early as did sociology and anthropology, Dr. Matarazzo said; and in his opinion, nursing science would have been further advanced if this had been done. Nursing faculties need to decide to give a doctorate and go about their business with confidence and not "By your leaves." The only way to create viable doctoral programs is for nurses to do it the way they think it should be done no matter what the people in the building next door say.

The second problem, the romanticized view nurses have of science, is correlated with the problem of self concept. In articles, debates, and conferences, nurses engaged in agonizing soul-searching and stock-taking about practice derived from principle and scientific theory in its relation to practice. These articles read like sophomore level text books, Dr. Matarazzo said. They are nonsense and a wasteful exercise. Nurses talk and talk and talk about science instead of doing it.

Science, Dr. Matarazzo continued, has little relationship to practice. This is true of all fields and all disciplines. Most practicing physicians, engineers, architects, and psychologists know less about the scientific method and utilize less science in their everyday practice than most of the nurses at the conference or on nursing faculties. In every profession, people are exposed to a lot of ideas about scientific method in their first year or two of study; but these have little relevance to what they do when they go into practice, or, worse yet, what they do if they begin conducting research. There is simply little relationship between what textbook writers say research is all about and what, in fact, scientists really do.

Why is nursing so set on establishing a relationship between science and practice, when no other field has been able to carry this off? Why do members of nursing faculties not stop talking about scientific method and research strategies and instead go take a good look at a scientifically active colleague in any other discipline? They should take one they admire and would like to emulate and follow him around for a few days or weeks to see what he actually does.

What they would learn is that what the scientist does is the very antithesis of the nonsense they write in their articles about the relationship between nursing and science. Nursing textbooks insist that science is orderly; that people are supposed to go through step one, step two, step three, step four. Science isn't like that. It doesn't follow well-established rules and principles. It is messy, unguided, untutored, personal, and biased. It is full of rage, anger, hostility, and optimism. And it is fun. This is something that is never mentioned in the articles. If these remarks seem shocking, an informative autobiographical account of this process, written by some of this country's best scientists in the field of psychology, can be found in American Psychologist, 1959, 14, pp. 167-179.

A scientist is not created by teaching someone scientific method. What makes a scientist is living science 24 hours a day under a good scientist-mentor and loving it and enjoying it. A scientist is like a man swimming and occasionally going under water and struggling for air to keep afloat but loving the struggle. Just as no two humans swim exactly the same way, no two scientists approach science in the same way. Each has his own style and enjoys it for his own reasons.

This is what science is. It is not the tepid thing nurses talk about to their students and write about in their papers on nursing research.

Those of you who are doing science, Dr. Matarazzo said, for Heaven's sake tell your students what you really do. Tell them what science is all about. The essence of doctoral education is process, not content. Nursing education should give less emphasis to theories of nursing science and nursing practice and the alleged relationship between the two, and more to the exciting processes of learning that will attract many talented young women now either lost to higher education or who are entering other fields. They should not be allowed to remain lost; they are needed in nursing.

## The Ph.D. in Nursing

The science of nursing is a science of whole man, said Dr. Martha Rogers, Chairman of the Division of Nurse Education, New York University. Our concern is with people, not just patients. If we are going to study man, the normal and the pathological have to be given equal attention. We have been too much inclined to slice man up into biological, physical, psychological, and social man and assume that by so doing, we have somehow gotten at man. This is not true. Biology does not study man. Sociology does not study man. They study selected aspects of man. You can no more call one aspect "man" than you can call hydrogen "water." The most sophisticated research methodologies in the world will tell us nothing about man unless the research is based on substantive content and theory. Without a theoretical base of pure research in nursing, applied research in nursing will have no source on which to found its examinations of the real world.

This is the concept that underlies nursing education at the doctoral level at New York University. The distinguishing characteristic of professional education in any field is the transmission of theories--not a body of technical skills. The validity of higher education in nursing rests squarely on the identification of an organized body of abstract knowledge specific to nursing and arrived at by scientific research and logical analysis. Knowledgeable, safe nursing practice requires scholars and scientists capable of developing an organized conceptual system out of which nursing theory and practice can be derived.

The Ph.D. degree has long been deemed to represent completion of a theoretically oriented research program of study. It is the appropriate degree for nursing's theoreticians and pure researchers.

New York University, Dr. Rogers continued, offers a Ph.D. with a major in nursing. It has the academic respect of the rest of the university and it is built on as substantial a scholarly and theoretical base as any other doctorate in the university.

This year, 41 full-time and 60 part-time students are studying for their Ph.D.'s in nursing. The central core of their doctoral program is study of the theoretical base of nursing. All students are required to demonstrate scholarly competence in research and investigation, and the doctoral dissertation is a significant aspect of their program.

These students have access to every department of the university and enroll in whatever graduate or undergraduate arts or science courses they need. The Division of Nurse Education is not required to pay the other departments for accepting these students; they simply attend as do students of other disciplines.

The close identification with the Division of Nurse Education maintained at New York University is important, Dr. Rogers indicated, because people who move into other departments to study for advanced degrees lose touch with nursing. It makes no sense for them to come back to do research in nursing, because they know nothing about nursing. If we believe nursing is a learned profession, there is no justification for preparing people to practice in other fields. Contributing nurse scientists who are biologists or sociologists or members of other disciplines to various fields has not, so far as she can see, contributed anything to nursing except delay, Dr. Rogers said. We should not let outstanding nurses get siphoned off into other fields. We should encourage them to put their brains and creative energy into elaborating the science of nursing.

The first Ph.D. degree in nursing at New York University was given nearly 40 years ago, Dr. Rogers said; but development of a doctoral program of scholarly stature was slow in coming. It was slowed down by the traditional and pervasive anti-educationism of nursing and a general failure to perceive nursing as a socially significant endeavor in its own right. It had neither a concept of itself as a learned profession nor a philosophy of nursing as a science. These problems were compounded by a critical dependency upon other professions.

All of these factors delayed the progress of nursing toward scientific and professional responsibility.

New York University, however, refused to be beguiled down the primrose path of offering doctorates based on a mix of facts from other fields coupled with observation and doing. Believing that the science of nursing is a new product, not a summation of facts and principles drawn from other sources, the university went its own way to develop a science of nursing. When she listens to the students at the university today, Dr. Rogers said, and sees their excitement in learning and thinking creatively, she knows that the right decision has been made.

The Ph.D. is not the only doctorate in nursing that is needed. There can be a number of different types, but all of them must grow out of the theoretical base of nursing that exists. This means that there must be people who have the background to supply this theoretical base to students. Without the leadership of such people, there cannot be substantive education in nursing at any level regardless of the degree awarded. The future of nursing rests with people who are committed to the scholarly responsibilities symbolized by the Ph.D. at its best.

## The Ph.D. in a Science Basic to Nursing

Nurses, like other professionals, have a variety of career goals, said Dr. Rozella M. Schlotfeldt, Dean of the School of Nursing at Case Western Reserve University. Therefore a pluralistic approach to nursing education is appropriate. At least four types of doctoral programs should be available to nurses. These include programs leading to the following types of degrees:

- doctoral degrees in nursing arts or nursing science denoting preparation for scholarly nursing practice;
- the Ph.D. degree in nursing denoting preparation for research and theory development exclusively in nursing;
- professional or research degrees in relevant fields of practice such as health care administration, education, and systems or operations research;
- Ph.D. degrees in disciplines relevant to nursing.

If adequate nursing funds are available, preparation of students for any of these degrees should be supported, Dr. Schlotfeldt indicated. She strongly opposes the use of nursing funds to support students whose career goals center on entering such fields of practice as medicine, clinical psychology or rehabilitation counseling rather than on the advancement of the nursing profession. Students should turn to other funding sources for this sort of preparation.

Dr. Schlotfeldt said that she is enthusiastic about development of the Ph.D. programs within the discipline of nursing in those settings having essential personnel resources. The profession needs nurses who are philosophers and historians. There is, however, a continuing need for some nurses who are well prepared in natural and behavioral sciences basic to nursing and applied in nursing practice.

All health disciplines draw on common bodies of knowledge about man as a biological, psychological, and social being, but they represent more than an amalgam of principles and theories from relevant basic sciences. Each field has its own unique body of knowledge. The scope of nursing science is determined by conceptualizing the nature of nursing and identifying the knowledge required for nursing practice. The central focus of nursing practice, education, and research is helping people cope with problems that lie along the health-illness continuum. Nurses need knowledge of man as a physiological, psychological, and social being affected by genetic, developmental, cultural, and environmental forces. They must also have command of knowledge about pathologies, injuries, infirmities, diagnostic procedures, and therapies. At least some nurses must know the content, language, approaches, and techniques of the basic and behavioral sciences which are useful for investigating important nursing questions.

The essential core of nursing science must be constantly updated. There must, therefore, be nurse investigators who have the knowledge and skill to ask the appropriate questions within pertinent theoretical frameworks, interpret their findings in light of existing knowledge, and feed this information into the nursing field so that students and practitioners will not be handicapped by inadequate or outmoded scientific bases.

It is no more appropriate to expect nurse investigators to be knowledgeable in all disciplines relevant to nursing than it is to hold such expectations for physicians and dentists engaged in research. Knowledge and technology are expanding so rapidly that nursing, like other applied fields, must rely upon investigators thoroughly prepared in particular basic disciplines such as anthropology, biology, sociology, and psychology and committed to using this preparation in research closely related to nursing.

The need for nurse investigators who have mastered a basic science may be illustrated by the contributions of one who is also a physiologist. Knowledge of biological mechanisms and ways of measuring them is essential to understanding the physiological consequences of various types of nursing action. It is probable that only investigators prepared by Ph.D. study in physiology would have the depth of knowledge and skills needed to make such important research decisions, and it is doubtful that physiologists who are not nurses will be interested in studying questions of particular concern to nurses. Thus it is appropriate to prepare nurse physiologists who can guide significant investigative efforts. It is equally appropriate to prepare nurse investigators in other basic science fields so that their knowledge and talents will be available to enhance the quality of nursing research and contribute to nursing science and nursing education.

At present, there is a paucity of nurse scientists and nurse scholars competent to guide doctoral studies. In 1970, there were only 587 nurses in this country who held earned doctorates. Most of these have received their doctorates since 1955. This is a remarkable achievement for a

15-year period, but even so, few nursing schools have been able to appoint substantial numbers of faculty who hold earned doctorate degrees. The need can be met only if basic science departments of graduate schools share with nursing faculties the responsibility for preparing nurse scientists and investigators. Nurses should be given individual tuition and stipend grants, Dr. Schlotfeldt said, but in addition, the institution that is providing their education should be supported in accordance with the costs of that education regardless of which department provides it.

Defining her own priorities, Dr. Schlotfeldt said that if funds were no problem, she would favor Federal support of all forms of high quality doctoral level nursing education. However, since funds are limited, she would favor giving top priority to expansion of the Nurse Scientist Training Grants program to include Ph.D.'s in both cognate disciplines and nursing. If money permitted, she would also favor support for doctoral work leading to the degree of Doctor of Nursing Science. She would not be opposed to support for doctorals in such fields as education and public health if the recipients intended to remain in nursing, but she would consider this type of degree in the fourth range of priorities.

Developing a research climate in nursing cannot occur overnight, Dr. Schlotfeldt said, but support of sound training of all types of investigators and potential nurse scholars will contribute to the advance of science and the ability of nursing to help man cope with the complex problems of illness and health.

## The Clinical Doctorate in Nursing

In presenting discussion of the clinical doctorate in nursing, Dr. Florence Erickson spoke both for herself and for Miss Reva Rubin, who was unable to attend the conference because she was fulfilling a temporary assignment in Israel. Dr. Erickson and Miss Rubin are in the Departments of Pediatric and Obstetric Nursing at the University of Pittsburgh. They have worked together to develop two very different types of maternal-child nursing research programs. In these, directed clinical care and research constitute more than half of the curriculum of the master's level education and more than one-third of the curriculum leading to the Ph.D. degree.

The Ph.D. in Clinical Nursing at the University of Pittsburgh is a program designed by nurses, for nurses. It came about because of the interest of well qualified clinical nurses who wished to pursue doctoral level education and because the research of two professors in their respective clinical fields was generating so many ideas for further badly-needed research.

Pediatric and maternity nursing share an interest in mother-child relationships, but the search for commonalities between the two forms of nursing has been avoided in this program. Biologically, socially, psychologically, cognitively, and situationally, mothers and children are different. What is salient to one specialty in nursing is background material for the other. A facile synthesis would, these investigators felt, be inimical to the production of new knowledge.

Clinical nursing provides the richest laboratory in the world. Nurses have the opportunity to study patients under stresses of many kinds. The nurse accompanies a mother or a child to surgery, to the X-ray room or the cast room. She sees patients under conditions which make it possible to study pain, sleeplessness, deprivation, and other problems of concern to nursing.

These phenomena have not yet been adequately described, and the clinical departmental unit is the optimal setting for this type of research. Nursing is an open system which interpenetrates with medicine, biology, and the behavioral sciences, generating its own questions and finding its own methodologies. Descriptive research--naming and defining the parameters of biosocial and psychosocial phenomena in nursing--may well be the major contribution of university-centered nursing research.

In the nursing departments of the University of Pittsburgh, a research oriented approach is used throughout graduate work. Students tool up with certain core courses, including introductory statistical and research methods courses, before beginning their clinical work in the second term. After two terms of clinical work, students may either complete work for a master's degree through elective courses and a thesis or may proceed toward doctoral degrees in their chosen fields of specialization.

Originally, much of the course work was programmed through university-wide departments offering relevant biosocial or psychosocial graduate content. This was not entirely satisfactory because of variations

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in quality and emphasis. Consequently, more reliance is now placed on seminars, in which the two nursing departments participate jointly. Faculty from various disciplines share in these seminars, and a particular effort is made to attract professors whose interests are congenial with those of the students and the nursing faculty. The success of clinical research rests upon actual involvement in patient care, the skill and sophistication of the nursing faculty responsible for guidance and supervision, and a climate of academic freedom. The very positive reception of the clinical nursing research and findings by members of other disciplines offers strong encouragement to the program and points up its importance for other fields as well as nursing.

During the clinical research terms, students see patients in hospital, out-patient, and home settings. Experimental, naturalistic, historical, and prospective research designs are used. Observations of patients are made independently and under faculty supervision. Sampling and observational techniques are anchored in problems of nursing care; and data and findings are tested and retested for validity and to broaden research experience. Clinical findings are pooled with findings from other disciplines to form the body of clinical knowledge. Doctoral candidates select as their major advisors faculty members with whom they have a communality of interests and experience.

To the clinical nursing practitioner, there is a high level of excitement in opening new areas of inquiry which will advance the professional quality of nursing. Because their entry into the wards and their focus in their research is as nurses, students in this clinical research program become stronger in their identification as nurses as they proceed toward their doctoral degrees. They gain a new sense of what they can achieve as members of the nursing profession.

## KEY ISSUES IN DOCTORAL EDUCATION FOR NURSES

Discussion during the conference was free ranging and lively, often reflecting deep convictions of the participants. Certain themes and key issues emerged repeatedly, and most of the participants expressed viewpoints on all of them during the conference. Opinion was seldom unanimous on any point, but several areas of general agreement could be identified. The most significant of these was the emphasis given to the need for diversity in doctoral level nursing education--diversity in the types of programs offered, and diversity in the funding mechanisms developed to support the programs. Another was the need to maintain strong support for research preparation at the same time that support for other types of nursing education is expanded.

### Assessing Nursing Education Needs

Nursing education, like education in many other fields, is in a transitional state. The traditional modes of preparation are no longer adequate for two reasons. These are:

- the changing role of nurses in the health care system;
- the increasing emphasis on upgrading the quality and professional level of nursing education to prepare nurses for their expanded responsibilities.

For nursing education to be relevant and effective in preparing nurses to meet the needs of society today and in the decades ahead, several areas of education at both undergraduate and advanced degree levels must be evaluated and updated. For example:

- We need to know whether we are developing adequate leadership in the administrative, educational, clinical, and research areas of nursing.
- We need to develop innovative programs that utilize the diverse talents of nurses more fully and identify the preparation nurses need to make these programs work.
- We need to reevaluate the curriculum, pruning away what is not relevant and developing new areas of strength.
- We need to look carefully at both process and content, devising educational modes that will stimulate independent thinking on the part of students but also provide them with the conceptual, theoretical, and factual bases they need to be good nurses.
- We need to move beyond the level of skill training to give nurses a broader understanding of the total needs of individuals, not just as patients but as human beings.

One of the stumbling blocks in nursing education is that we have too long focused on content, a nurse participant said. People have memorized facts rather than learning how to conceptualize. Theories, however useful they may be, are really only unsubstantiated thoughts about content. What we need to teach students now is the process of conceptualizing so that they can bridge the gaps between theory, empirical knowledge, and practice.

Nursing has had an attitude that there was only one right way to do things and anyone who did them differently was not a nurse, the dean of a school of nursing said. Nursing has purported to be a system of errorless performance. This has led to a restricted view of issues. Now we are recognizing that there is room for innovation in nursing and that there is nothing wrong with coming up with something that is less than a perfect gem or the final distillation of knowledge. We are beginning to shift to a new model of what nursing is, but this readjustment takes time.

As a biologist, another participant said, he has difficulty relating to nursing, particularly when nurses talk so much about methodology and the science of nursing. No matter how long he listens, he is still not sure what they are saying; but it appears that they are going to talk themselves to death in meetings. He finds it difficult to conceive of a science of nursing because, to be objective about it, he cannot even define a science of biology. He cannot identify an area he can claim specifically as the sole province of biology. Every discipline "steals" from every other; there is little that is absolutely unique to a single discipline. Nursing has to grow as any other field does, appropriating what it needs from other disciplines.

Students who enter nursing from a background of biology or some other science often become disgusted with it because no effort is made to relate nursing to the sciences and make use of the background they already have. There is not enough emphasis on continuity between undergraduate and graduate education. Undergraduate education must produce the quality of students who will be acceptable in the outstanding graduate level programs, and graduate level programs must achieve a level of excellence that will attract and hold outstanding people.

All of the universities are in competition for scarce personnel, other participants added; and there is a question how many different types of programs nursing schools can handle in view of the shortage of highly qualified personnel. We should not assume that every university has to jump on the bandwagon and provide every type of program, but we must be sure that the programs that are offered are of top quality. At the present time, no one is sure what constitutes a quality program. Some schools use the number of faculty members holding doctorates as the criterion for setting up graduate programs, but this in itself does not provide quality control because nursing, like every other field, contains people of different levels of capability. The evaluation must be done on a more objective basis. In order to assess nursing education needs and make the desirable changes, we need more people who are qualified to do the kinds of research that will enable us to judge the effectiveness of various types of curriculum content and various educational approaches.

This creates a circle of interrelating needs. Doctoral level research training for nurses needs to be strengthened so that more well trained investigators will be available not only for clinical research but for research into the underlying needs of nursing education itself.

## The Pluralistic Approach to Nursing Education

Virtually all members of the conference group indicated that more than one form of doctoral level education for nurses and more than one type of doctoral level degree is needed. This, they said, is the only way we can foster the development of nursing as a science. We cannot expect all nurses to be practitioners or all nurses to be Nobel prize-winning researchers, nor would this be desirable. Interests and talents differ, just as they do in medicine or any other profession. All graduates of medical schools are M.D.'s, and they have certain attributes in common; but they elect many different life styles. Nurses should have multiple options, depending upon their mission and profession in life; and doctoral degree candidates representing various fields of interest should be selected by the schools. Without diversity, any field stagnates and ceases its creative development.

Several types of degrees were suggested, including:

- the Ph.D. in nursing;
- the Ph.D. in a cognate discipline;
- the professional doctorate in nursing science;
- applied doctorates in education, public health or nursing arts.

Some participants opposed the idea of giving a Doctor of Education degree to nurses. Both education and nursing are applied fields, they said. It does not make sense to give a degree in one applied field to someone in another field. Others felt that a prejudice against the Doctor of Education degree exists because many of the programs have been weak. It would be an acceptable graduate degree for nurses who wish to become expert teachers of nursing if a high quality were maintained, they said.

One reason diverse educational patterns in nursing education are needed is that the unique role of nursing in the total work called health has not been identified. Medical care is disease-oriented, with prescription and treatment as its main outcome. To define the focus of nursing, we need nurses in the decades ahead who come from many different backgrounds and can use these theoretical frames of reference to define the parameters of nursing. We need to look at the nature of nursing, define its needs in various areas, and zero in on ways to meet these needs.

Although some participants shared Dr. Matarazzo's opinion that the terms "nurse" and "nurse scientist" are too limited to describe the full range of activities of today's doctoral level nurses, there was strong feeling that the primary identification with nursing should be maintained. However, a number of participants pointed out that what we call the degree is not important. The degrees, titles, and job descriptions people have often bear little relationship to what they do. The important thing is what kind and quality of educational product nursing education produces and whether it provides the kinds of people that are needed to enable nursing to make its maximum contribution. Not all of the doctoral education programs in the nursing schools meet high scholarly standards at the present time. A universally accepted formulation of minimal content for professional degrees needs to be developed.

What degree is given has more to do with the way a particular university is organized than with the kind of educational program it represents. In some schools, for example, a nurse who plans to teach receives a Doctor of Education degree; in others, she receives her degree in nursing.

The lack of universal degree terminology has some disadvantages, participants pointed out. It creates confusion both in professional circles and among the public. It also makes it difficult to judge what the standards for particular types of doctoral education are, and thereby makes assessment of quality more difficult.

Although supporting the concept of a pluralistic approach to doctoral level nursing education, some participants had reservations about encouraging nurses to take their degrees in basic or behavioral sciences. This can cause them to lose touch with nursing, they said. Nurses who go off somewhere as nurse scientists to study biology or some other science become quasi-nurses. It takes 2 or 3 years to get them retooled back to being nurses when they become members of nursing faculties.

This is less of a problem if students are encouraged to remain in close touch with the nursing school while doing their doctoral studies in another discipline, another participant said. Those who maintain close ties tend to relate their dissertations more closely to nursing problems than those who move completely into some other academic field.

One reason people leave nursing and go into other fields of practice is that they find them more lucrative, another participant pointed out. It is not that they lose interest in nursing, but that they can make more money in fields like clinical psychology.

Recognizing that all of these hazards do exist in developing different types of degree programs, most of the participants indicated that they feel the advantages outweigh the disadvantages. All types of nursing share certain conceptual and factual bases, and nursing has areas of commonality with other fields such as psychology, sociology, and various basic sciences. In developing degree programs, these areas of commonality should be explored and exploited.

A gold mine of data has accumulated which nursing has only begun to mine; but of the 500 or so nurses now in doctoral preparation, only a few will choose to devote their careers to research. There are many kinds of doctoral level people who can look for many of the same things nurses are looking for as they try to establish the science of nursing, and efforts should be made to draw together people who are working toward the same investigative goals.

The interaction with other disciplines that has been stimulated through the Nurse Scientist Graduate Training Program has been helpful in sharpening the perceptions of nursing. Now these can be applied within nursing. The schools are beginning to become more peer-oriented, and studies are being done which make use of similarities between the problems of nursing and the problems of other disciplines.

Having nursing students in other departments of the universities also strengthens the relationship of the schools of nursing with the other departments in other ways. Nursing faculty members serve on curriculum committees and on the doctoral committees for students in other departments, to the mutual benefit of nursing and the other disciplines.

## The Research Component in Doctoral Level Education

Discussion of the research component in doctoral level education centered around three issues:

- Should the requirements for a Ph.D. in Nursing include a heavy emphasis on research?
- Should all doctoral level programs of nursing education have a heavy research emphasis?
- Should all nurses holding doctoral level degrees be expected to be competent researchers?

These issues overlap, and the participants offered a variety of viewpoints about them. Some pointed out that such disciplines as history do not require a major emphasis on research as part of the requirement for a Ph.D., and there is no reason why nursing should. Others felt that the research component is an indispensable part of Ph.D. preparation.

The difference between a Ph.D. in Nursing and other types of doctoral level nursing degrees lies in the matrix of research, some participants said. One of the schools of nursing has obtained support for its Ph.D. program because it meets all the Ph.D. requirements of the university, it is doing research, the research is in nursing, and it is solid research. Whether nurses plan to make a career of research or not, it should be a major element of their scholarly preparation, because it teaches them a disciplined way of thinking which is essential in whatever area of nursing practice they enter.

This sounds as if research is the exclusive province of candidates for the Ph.D. in Nursing, other participants pointed out. This is not true. It is possible for nurses to get just as high quality research training in some programs leading to other graduate degrees. In fact, some of the people who get graduate degrees other than the Ph.D. in Nursing are better trained for research than some of the people in substandard Ph.D. programs. Quality is uneven at the present time.

Some participants felt that all Ph.D. degrees, whether in nursing or in supporting sciences, should have a strong research orientation. There are not enough people qualified to do top quality research or to prepare others at the doctoral level for research. Much of the nursing research that is being done is of poor quality.

This problem is not unique to nursing, a biologist pointed out. In his estimate, only about 10 percent of the biophysical science research that is done is worth publishing.

Other participants made a distinction between the research requirements for Ph.D. degrees and for other types of doctoral degrees. It is not necessary for all doctoral degrees to be research oriented, they said. Many disciplines offer several different types of degrees. Engineering, for example, offers two degrees, a Doctor of Engineering and a Ph.D. in Engineering. The first stresses the clinical or technical aspects of engineering, and the second stresses theoretical and research aspects. About 50 percent of the curriculum is unique to each degree and the other 50 percent is the same for both. This is also true in the field of psychology. In nursing, as in other fields, there is a need for people who are well prepared for many different types of work. There is no reason for all of them to be prepared to conduct research.

The absence of a heavy research emphasis in a doctoral program does not necessarily mean it is a weak program. One could have a very fine program in which there is less emphasis on research than on other things. For example, a Doctor of Nursing Arts program might be developed for people who want to become expert teachers of nursing. This would not necessarily require a heavy emphasis on research.

Other participants strongly opposed this idea. It should be possible to get degrees of several different types, they said, and the amount of research included in different types of programs would vary; but there should be a research component in all of them. Clinical practice, clinical teaching and clinical research are inseparable. It is impossible to do clinical teaching unless one is simultaneously doing clinical practice and clinical research. A clinical teacher may get loaded down with too many courses and too many students and have no time to do a final analysis and write-up on her data, but she keeps right on collecting it anyhow and analyzing it when time permits. Outstanding teachers usually base what they say on what they have done in the field, drawing upon their experience in the use of nursing skills, implementation of programs and research. Learning about research and doing research are two different things. They should be drawn closer together in nursing education, and this can only be done through teachers who are themselves involved in research.

Unfortunately, many faculty members and administrators do not see the importance of research, and they resent anyone who comes in with a Ph.D. and says she wants to do research, or that she wants a job that is 50 percent teaching and 50 percent research. Nursing lacks sophistication about research. Ph.D. people are added to faculties as status symbols. They are the frosting on the cake. They are given so many other responsibilities that they have only time to dabble in research, not to go into it in depth. They carry heavy teaching loads and sit through hours of ridiculous meetings instead of being allowed to spend their time in serious research.

The nursing schools should create some research positions, some participants felt. The administrators of the schools have a responsibility to look squarely at this issue, and the doctoral level nurses are going to have to learn to negotiate for research time and make it a condition of their contracts. The opportunities for research in clinical nursing are fantastic, but most of the schools are not taking advantage of this opportunity.

Other participants expressed impatience with the idea that nursing schools have an obligation to provide time for research for people who say they want to do research but have no clear idea of what they want to study. If a person really has a question, she is going to find the time to study it. The issue, therefore, is not whether time for research is available but whether people can be found who are committed to developing new areas of knowledge and know enough to go about it effectively. At some schools, all faculty members are expected to engage in both research and teaching; that is, in the development of new knowledge and its transmission to students. The level of involvement, of course, reflects differences in individual interests.

Many nurses do not want to make research their central focus. They do research only to get recognition and the types of positions they want. One problem in making a sharp distinction about the amount of research required for different types of degrees is the age at which candidates must make their choices. A 22-year old student may not know whether she is better equipped to do research or to pursue some other emphasis in nursing. Some people still don't know what they want to do when they are 30 years old.

We should not get hung up on questions about what the individual is going to contribute after she gets her degree. It has been demonstrated time and again that what people start out to do is often quite different from what they end up being interested in doing. The important consideration in doctoral level education is not the kind of degree offered, the exact amount of research training it provides, or whether the individual will go into research or some other area of nursing. The important point is that the quality of doctoral level education, regardless of its emphasis, must meet high standards of scholarship.

## Expanding the Nurse Scientist Graduate Training Program

As now organized, the Nurse Scientist Graduate Training Program centers primarily on upgrading the research capabilities of nurses by funding their doctoral level education in disciplines other than nursing. Most of the participants indicated that this focus is too narrow in view of the many types of needs in nursing education.

The question is, one participant said, are we going to support the producers of nursing knowledge, the utilizers of nursing knowledge and the imparters of nursing knowledge? Regardless of what we call the programs, we need people in all these areas. We are already committed to supporting researchers, the producers of nursing knowledge. Now are we going to expand on that and also support the clinicians--the utilizers of nursing knowledge--and the educators who impart nursing knowledge?

Although stressing that expansion of support for additional types of nursing education should not be allowed to diminish support for research preparation, many of the participants agreed that support should be expanded to include nursing education in which the major emphasis is on something other than research, so long as the quality is high. Others felt that all programs supported should have a strong research component. Nursing has a case it hasn't made, a participant said. After Sputnik, the physical and engineering sciences had riches of research support the like of which had never been seen before. The rug has been pulled out from under that now, but the time is right for nursing research to get greatly increased support. We could simply admit that our concepts of nursing practice have been entirely intuitive, and we might get an A for effort. But what we need now is investigated, validated correctives. That means nursing research. If we tell the story properly, we can get the research support that is needed.

This issue related closely to what the participants said about what types of students should be supported. Many expressed a strong feeling that higher priority should be given to supporting students who plan to remain in some field of nursing than to nurses who plan to enter other professions. The emphasis should be on strengthening the field of nursing, they said, especially nursing faculties. Support should be given to nurses preparing for administration, teaching, and clinical responsibilities as well as research. The present system of funding, with its heavy emphasis on research, leads people to be dishonest about what they really want to prepare for. People should not have to claim they want to do research in order to get funds if what they really want to do is become deans or clinicians.

Not all of the participants agreed that support should be limited to nurses who plan to stay in the nursing field. In the first place, they pointed out, people's career interests do not remain static. They often end up in fields quite different from their initial goals. In the second place, some nurses may contribute as much or more to nursing through practice in another discipline than they could do by remaining strictly within the boundaries of nursing. For example, some clinical psychologists do significant research in such health related fields as abortion, and a nurse who is also a clinical psychologist might advance the science of nursing through her work in this field.

Several participants urged that quality safeguards be built into funding programs. However, they added, students should not be penalized for the deficiencies of the programs. They should not be denied fellowships because a school is weak in a particular area.

Most participants agreed that several different methods of funding doctoral level nursing education may be needed. Means of funding whatever doctoral level programs are not now funded should be explored, they said. They urged that the funding mechanisms be kept as simple as possible. Rather than limiting grants administered by the Nurse Scientist Graduate Training Committee to research-oriented education and setting up another committee to handle grants for other types of doctoral level nursing education, the Division of Nursing should try to filter all applications through the same channels. If funding is fragmented, people will not know where to apply for what.

## Individual and Institutional Funding

All of the participants favored financial support for doctoral level education for nurses, but there were some differences of opinion about what types of funding mechanisms are preferable. Many participants felt that grants and stipends to individual students should be supplemented by grants to the institutions where they are being educated. Institutional support makes it possible to mobilize and direct forces toward certain goals, they said. The differences of opinion about institutional grants that were expressed concerned the basis on which they should be given.

The amount of funds available for doctoral level nursing education is limited; therefore, it is important to set priorities for their use, the participants said. Various members of the group suggested that types of support needed include:

- grants to individual students to cover fees and stipends;
- fellowships;
- grants to cover some of the costs of research equipment and facilities, at least during the last year of the fellowship; otherwise, the department must subsidize the student in order for her to do the kind of dissertation everyone wants her to do;

- grants for research;
- grants for research development;
- grants to support research faculty (In order to support students in research, schools of nursing must have ongoing research programs, and there have to be nurses on the faculty who are doing research.);
- curriculum planning and development grants to support faculty while the schools are working out doctoral programs for nurses;
- grants to departments outside the nursing school under certain conditions.

Currently, the Nurse Scientist Training Grants are usually given to educational institutions to support nurses who are doing their doctoral work in such disciplines as psychology, anthropology, sociology, and physiology. Several participants pointed out that if an institution receiving such grants later develops a doctoral program in nursing, its school or department of nursing could be included as one of the departments eligible for support.

Most of the participants appeared to be strongly in favor of grants and fellowships to individual students. Some felt that there is a greater need for support for individual nurse-scientist and Ph.D. students than for support of institutional programs, but most of the participants indicated that both individual and institutional grants must be provided if the quality of doctoral level education for nursing is to be upgraded. Which form of funding gives the best payoff is difficult to evaluate in such a new program, because the results will not be evident for many years, until the nurses now receiving doctoral education are in mid-career.

One reason that direct grants to individuals as well as grants to institutions are needed, a participant said, is that many applications come from married women who do not have free choice of institutions. They have to attend schools in the areas where they live because of their husbands' work. If these schools happen to be receiving no institutional grants, these women must have individual grants in order to be able to enroll.

Some participants said that there is a gap in funding mechanisms in the period between completion of doctoral training and the time that people are ready to launch their research. The schools are losing valuable people because they cannot provide support during this interim period. People have to detour into full-or part-time teaching to tide them over until they can obtain research grants, and this can delay the start of their research for a considerable period. Some disciplines do give this kind of support. One nurse, for example, who took her doctoral degree in microbiology stayed on for a postdoctoral year in the same department before returning to nursing.

Other participants questioned whether too many expectations of financial assistance are being created. We may be doing nurses and the nursing field a disservice by placing too much emphasis on such help, they said. Some of the most worthwhile dissertations have been done by people who did not receive fellowships and had to work in schools of nursing 1 or 2 days a week to pay for their education.

In relation to institutional grants, some participants said that schools of nursing should receive funds with no strings attached. Utilization of the funds should be at the discretion of the school. Many medical schools and schools of public health receive funds on this basis.

However, one reason it has been difficult for schools of nursing to get grants with no strings attached is that there are three or four hundred schools--several times the number of medical schools. Program emphasis varies widely. If support were to be expanded, it would first have to be determined whether grants would go to schools with baccalaureate programs or master's programs or only to those with doctoral programs. If grants were to be given to those with doctoral programs, a decision would have to be made about whether all types should be included or only those in certain fields offering certain types of degrees.

If a nursing school finds that a department whose cooperation it needed to develop a well rounded program of nursing education cannot afford to participate unless it has an extra faculty member, the school of nursing should be able to use some of its funds to enable the other department to hire someone, some participants suggested. Most departments suffer from a scarcity of funds, and they naturally prefer to use what they have to pay faculty to teach their own departmental majors.

They know that many of the nurses will return to nursing, and they feel their funds should be used to educate people who will remain in the disciplines that support them through their doctoral work.

Nurses believe in self perpetuation, a professor of nursing said. They contribute nothing to producing people for other fields, yet they turn right around to the departments of biology or psychology or sociology and say, "Really, you should be interested in helping us." This is an unreasonable attitude.

Some other participants were strongly opposed to what they called "buying bodies." At both the baccalaureate and the graduate level, students from many disciplines are admitted to courses in the basic and behavioral sciences without their major departments having to support faculty in these departments. Why should nursing have to use its scarce funds to pay for this same privilege?

A number of participants pointed out that one key consideration is the number of students a school of nursing wishes to place in other departments. Sending one or two students into a large department is one thing; sending eight or 10 to a department that can accommodate only 20 to 30 students is another. One sensible solution is to relate any grants to these departments directly to the number of nursing students enrolled in them each semester.

Some participants favored a matching fund mechanism through which funds would be given to other departments to use as they see fit rather than having the funds specifically designated for purchase of faculty positions. One advantage to the matching fund base is that it results in a sharing of costs so that the total cost to nursing is reduced.

In all aspects of the development of nursing education, flexibility is an important key, many participants indicated. Nursing education at all levels is in a transitional state. We should develop doctoral programs and funding mechanisms that will encourage further evolution as new needs become apparent.

# PART 11

## Background Papers

# PERSPECTIVE

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## Doctoral Education in the United States

The doctorate as an earned university degree had its beginning in Medieval Europe. As again acknowledged in a recent and scholarly historical review by Spurr (1970), today's academic degrees are an outgrowth of the trade guilds which flourished in Europe during the Middle Ages. Under Roman law each trade and profession had the legal right to constitute itself as a collegium and to elect its own magistrates. Teachers and students formed themselves into such guilds in Bologna and Paris during the 12th century. These latter guilds took the name universitas of doctors about 1160 in Bologna, deriving the title doctor for themselves from the Latin word doctorem, a teacher. (It would be many centuries before the profession of medicine, and later other professions and scientific disciplines, would also adopt this title.) By the year 1200, the teachers at Bologna had formed, among other subguilds, a "University of Professors of the Civil and Canon Law" and, by 1219, the system of awarding formal degrees (titles) was fully established at Bologna. In Paris a parallel development occurred, with the establishment of a rudimentary guild of masters (from the Latin word magister) in about 1170, and with the earliest records of such a guild dating from about 1208. Developments at each of these two great institutions of learning accelerated during the remainder of the 13th century with specialization of function also beginning in that century. Bologna from the outset became renowned as a center for the study of civil and canon law and its teachers were called doctors. Paris, on the other hand, from its inception became a center for the study of arts and its faculty were termed masters. The student completing his studies and graduated by the faculty or guild of either of these two universities had conferred upon him the respective title, doctor or master, and was admitted to the local guild of teachers. Thus, from their initial usage, the terms doctor and master, or alternately, professor were synonymous in Medieval Europe. Over the next 600 years, at Paris and later at Oxford, the title master prevailed and was interchangeable with professor. In Bologna the title doctor (or professor) remained, subsequently spreading throughout Italy and Germany, and from thence to the United States. Until modern times, the German Doctor of Philosophy was synonymous with the English Master of Arts.

From the beginning, medieval masters and doctors at Paris, Bologna, and Oxford were accorded the informal privilege and right to teach anywhere without further examination. This practice was formalized and received international recognition when Gregory IX founded Toulousse University in 1220 and, 4 years later, declared in a papal bull that anyone admitted to mastership there automatically was qualified to teach in other universities. In time, however, control of the university at Bologna, and in other cities, was wrested from the teachers by their students with the result that the doctor (and soon the master) was stripped of his automatic teaching prerogatives and the title came to represent a distinction of honorary achievement and did not ipso facto stipulate one's academic office. As Spurr (1970, p. 10) points out, "In short, it became a degree." (In contrast professor has remained unchanged as a title signifying senior university rank.)

The lesser rank of degree of bachelor came later and was awarded to the advanced student who was permitted by a master or doctor to lecture or tutor in a limited area of the professor's specialty. By the end of the 13th century the baccalaureate was a formal degree requiring some 4 or 5 years of study, whereas the doctorate (masters) required 7 or 8. In time, in France the baccalaureate became a secondary school diploma, being replaced by the license, although in England the baccalaureate became an even stronger degree. (Even today the English Bachelor of Medicine is the equivalent of our Doctor of Medicine.) This latter tradition was continued with the founding of the early American colonies and our earliest universities. From the founding of Harvard College in 1636 to the Civil War, some 200 years later, higher education in the United States followed the model of the English college in that the only degree which could be earned in this country was the Bachelor of Arts (B.A.). Four years of study was the standard requirement and the curriculum was a classical one. Higher unearned or honorary degrees were awarded during this 200-year period; one of these being the Master of Arts (M.A.), a degree given as a matter of course to all holders of the B.A. who paid fees and otherwise remained in good standing. As is known, this pro forma M.A. was abandoned during the last third of the 19th century, and the newer and stronger form of the

M.A. degree was earned by prescribed post baccalaureate study by the students seeking advanced education, especially those interested in college and university teaching positions.

This country's earliest university-educated scientists thus could not obtain doctoral level training in America throughout the first three-fourths of the 19th century. Some 10,000 American students (yielding a mere statistical mean of 100 per year) earned their doctorate degree in Europe during the 19th century; with most of them studying in Germany and fewer in England or other countries (Berelson, 1960, p.11).

However, during the last half of the 19th century a few of America's excellent but small 4-year colleges, after some notable initial failures (Berelson, 1960, p. 6), began to reorganize themselves with varying degrees of success as institutions for graduate study. The University of Michigan in 1853 abandoned the unearned and automatic in cursu Master of Arts degree, substituting in its stead the earned, pro meritis counterpart. The first such earned M.A. was awarded by Mighigan in 1859. Yale University has the distinction of establishing the first American study program for an earned Doctor of Philosophy (Ph.D.) degree and awarded its first such doctorate in 1861 to four men. In establishing this graduate degree, Yale formally acknowledged that its doctorate was specifically designed "to enable us to retain in this country many young men, and especially students of science, who now resort to German universities for advantages of study no greater than we are able to afford" (Spurr, 1970, p. 118). A Ph.D. thesis and oral examination were part of the requirements for this first American doctorate. With the founding of Johns Hopkins University in 1876 as the first American institution exclusively dedicated (at least initially) to graduate study, followed by Clark University and Catholic University in 1889, and the University of Chicago in 1890, this country began the education of Ph.D. students in earnest. In 1890, Harvard added a graduate school alongside its undergraduate college, and the State universities of Michigan, Wisconsin, Nebraska, and Kansas followed in rapid succession. However, today's quality control of the Ph.D. degree had not yet been established. Although the Ph.D. had become the desired degree for appointment to a major university faculty in the United States by the year 1900, it still was a degree requiring only 2 years of post baccalaureate study at some of our best universities. Also, other American universities, unable to assemble the requisite advanced faculty in any discipline, began the dubious practice, since discontinued, of awarding the Ph.D. as an honorary degree. In 1881, and preceding some other universities by many decades, Johns Hopkins lengthened its program of study to 3 years and, in 1883 established a graduate academic council to formalize and maintain its initial high standards for the Ph.D. degree. Through its efforts and by 1887 the format of the dissertation was outlined, French and German reading examinations were added, an official advisor was required, two outside examiners were appointed to read the thesis, and award of the degree required that a typed copy (preferably) be presented and filed in the library. By 1935, through the vigorous and continuing efforts of the Association of American Universities (established in 1900) and other unofficial, self-regulating accrediting bodies, this Johns Hopkins model would become the established one for the Ph.D. in the United States. (That is, in the America of 1935 a graduate school based on the 19th century German model was placed on top of an undergraduate college based on the earlier established English model as the route to be followed by seekers of the Ph.D. degree.) However such a two-phase curriculum, and the informal and self-regulated standardization and quality control of the Ph.D. degree, was accomplished only after a full century of acrimonious debate and furious charge and countercharge within the American halls of academe. Berelson's (1960) review of the 19th century era in our history will be of interest to today's academic faculty members:

> "There is little point here in going into the detailed story of the early battles over graduate education, fascinating and revealing as they often are. The combination of high purpose and dedication, of hope and disappointment, of grand plans and mistaken strategy, of radical vision thwarted by conservative practicality -- in short, that combination of traits attending most innovating movements of such scope was not absent here. Even a casual reading of White on the Cornell situation, or Tappan on Michigan, or Burgess on Columbia will remind anyone acquainted

> with academic politics that the familiar practices of today were by no means unknown in the nineteenth century ..."
>
> "The early skirmishes are still important, however, because some arguments and issues current now were apparent even then. For example:
>
> (1) The normal resistance to innovation and change by established faculties;
>
> (2) The tension between scholarship and professional practice as the primary objective of graduate study;
>
> (3) The impact of a fast but unevenly growing body of knowledge;
>
> (4) The conflict between influences on educational policy from inside the academic community (the universities and the disciplines) and from outside ('the needs of the times')" (pp. 6-8).

The issue of the role of research, the so-called essence of study for the Ph.D. degree, was by no means settled once and for all at Johns Hopkins in 1876. However, despite decades of subsequent criticism from those universities with educators interested in the preparation of teachers for our colleges, the issue was "settled" by the year 1900 (although no longer in 1970), and future teacher gave way to future scientist in the official conceptions of the probable career goal of recipients of the Ph.D. degree. In 1890, some 100 earned American doctorates were awarded, increasing to about 250 in the year 1900 (Berelson, p. 14), and about 50 of our universities were offering such doctoral study.

Paralleling these developments during the 19th century the early seeds for doctoral programs other than the Ph.D. degree also were being planted in the United States (Blauch, 1955; Eells and Haswell, 1960). This followed from the development of America's indigenous type of guild, the learned professions -- open initially to journeymen recipients of practical training, and/or only modest undergraduate education. In 1846, one of the first such professional societies was formed, the American Medical Association (Blauch, 1955, p. 131), although some States had begun to license practicing physicians following the Revolutionary War. Nevertheless, by the 1840's, the States had given up this licensing practice, and this development, among others, no doubt led to the formation of the American Medical Association. Following the Civil War numerous other professional associations developed (Berelson, 1960, p. 15), for example, the American Chemical Society (1876), Modern Language Association of America (1883), American Mathematical Society (1888), American Psychological Association (1892), American Physical Society (1899), and American Sociological Society (1905). Some of these associations (e.g., medicine, engineering, nursing, accounting, and, beginning in the 1940's, psychology) persuaded the State legislatures that the quality of the respective professional service would be enhanced by licensure (or certification). The subsequent initial licensing act usually permitted licensing through a "grandfather's clause" to all of the then current practitioners, independent of the candidate's previous educational and other qualifications. Thereafter, all candidates were required to be graduates of their appropriate professional schools. However, strong standards were not established for these schools and the selling of diplomas and other forms of corruption occurred. To compensate for this, the societies asked their State legislature to require an examination by a board of one's professional peers before licensure, but this too proved unable to halt the abuses, and again some of the professional associations reverted to increased formal educational requirements as the safeguard for the minimal qualification to enter a profession. After the turn of the 20th century, more and more State societies and statutory examining boards began to model the educational requirements for entry into the profession after the high standards, essentially baccalaureate level (interchangeably called M.B. or M.D. by several of our early American colleges), for such professional training which had prevailed in medicine, for example, at the University of Pennsylvania as early as 1765-68, Kings College (Columbia University) in 1767, Harvard College in 1782, and Dartmouth College in 1798. However, these schools were then educating few physicians. Of the 3,000 practicing physicians in the United States in 1780 only 51 had taken degrees in America, fewer than 350 elsewhere, and the remaining 2,600 had no degrees at all (Blauch, 1955, p. 11). By the year 1812 most colleges had dropped the M.B. degree and substituted the more prestigious M.D. degree, only adding to the lack of standards (Eells and Haswell, 1960, p. 165). This state of affairs did not change much for medicine or the other professions until after 1900. The first American baccalaureate degree (B.L.) in law was awarded by William and Mary College (Virginia) in 1793, followed by the University of Maryland in 1816, Harvard in 1817, Yale in 1824, and Virginia in 1826. Engineering began at West Point in 1802 followed by Rensselaer (Troy) in 1824 (with the latter awarding the first such baccalaureate in 1826); Pharmacy degrees (Graduate in Pharmacy) began in Philadelphia in 1821; and Dentistry degrees (D.D.S.) at the Baltimore College of Dental Surgery in 1840. As in medicine, the bulk of these early American professional schools, including some affiliated with our major universities up through 1915, were proprietary institutions operated for the owners' profit. However, as the American Ph.D. degree for the future scientist or academician was added on top of the baccalaureate during 1876-1935, thus helping to transform our undergraduate colleges into universities, the seeds also were planted for the soon to begin 1900-50 era of massive improvement of the educational standards in these soon to become university-affiliated professional schools of engineering, medicine, law, nursing, business, etc.

Just as the formation of the Association of American Universities did much to upgrade the quality of the Ph.D., the development of similar initially informal accrediting associations for the professions occurred. Among the first of these was the AMA's Council on Medical Education, which was established in 1904, followed by its counterpart in the American Bar Association, and comparable accrediting bodies in pharmacy, dentistry, engineering, and nursing. The American Psychological Association's accrediting body, the Education and Training Board, is one of the newest of these, established in 1947. In 1949, a National Commission on Accreditation was established in order both to coordinate the activities of these disparate accrediting bodies to the same university and, more importantly, to provide the universities, and their faculties and administrations, with a voice in the nature of this outside influence on their curricular offerings.

During the past 50 years spirited and not infrequently acrimonious debate has taken place within our university faculty councils and in the professional societies about the pattern of training required to prepare a person to enter each of the learned professions. There is today far from universal agreement among the leaders within a single profession about how best to educate the student for this profession. Thus, for example, even today there is no one requirement which is agreed upon across all universities for entry into most professions (e.g., the years of undergraduate or graduate education required for graduation and licensure, or whether or not a practicum is required at all, or required either before or after the awarding of the professional degree). Medicine can serve as an illustration. Some medical schools award the M.D. degree after 2 years of college upon which have been added 4 years of medical school; others require 3 plus 4 years, and still others 4 (B.S.) and

4 (M.D.). Interestingly this latter, the modal pattern of the last four decades, is rapidly giving way to a sizeable reduction in the length of time in many medical schools; quite probably to a total of 6 years (Kerr, 1970). The legal profession has far from standardized the length of its educational requirement, although a 3-year law school program added upon 3 years of undergraduate education is quite common. Licensure in engineering and accounting are fairly standardized to a 4-year baccalaureate requirement; but nursing is still undecided as to the 3-year hospital diploma followed by the State-awarded R.N., versus 2 years in a Community College (A.A. degree) plus a hospital diploma, or 4 years of college (BSN) in a university-based school of nursing (plus passing the State's independent licensure examination for the R.N.).

The further development of these professions, and their fuller absorption into the universities during the past decade, has served to help open some earlier wounds regarding the meaning of, and the requirements for, attaining the Ph.D. degree. As reviewed by Berelson (1960) and by Spurr (1970, pp. 135-137), at the core has been, and currently remains, the dispute within academia as to whether the Ph.D. is a degree that exists primarily to train research scholars in the traditional arts and sciences (the so-called backbone of a university) or whether this same Ph.D. degree should also encompass the preparation of college teachers and advanced professionals in such other fields as speech, home economics, applied physics, and library science, to name a few. The purist vehemently argues for the former, although the pragmatist, fully aware of the history of the past 40 years, and the steady intrusion of these other disciplines into the ranks of those offering the Ph.D., clearly has won the day. Independent of one's own bias on this issue, the Ph.D. is a degree which is today conferred upon many individuals embarking upon careers as teachers and as professionals, along with those planning to follow careers in research and scholarship. It is a higher degree given in virtually all fields of learning within our universities and all indications are that this practice will continue. Thus, even today, within the different departments of one or another of our most prestigious universities, the Ph.D. degree is offered by the faculty of one discipline to those who will embark upon careers in science, in another for scholarly writing, and in another as preparation for teaching, another for professional practice, and still another for administration. The Graduate Faculty of each institution has, within the past four decades, made this decision as each new discipline came to it with its own set of unique requirements and problems. As, for example, the M.D. degree was strengthened from the 1920's on, and some of its recipients became both the teachers of the next generation of students and concurrently in ever increasing numbers also occasionally the producers of new and important scientific findings, it was difficult to maintain the myth that the Ph.D. holder was a scientist and holders of professional degrees were not. Examination of any of the lists of the names of this country's most distinguished scientists, including its Nobel Laureates, will reveal the names of many M.D.'s alongside

Ph.D.'s. Thus, the revolution and golden era of American science between 1920-70 has forcibly taught the antagonists within our highest academic councils that it is probably the personal characteristics of the man (or woman), and not his academic degree per se which will help determine his degree of contribution to our vast, ever-increasing output of new scientific knowledge.

Repeated attempts have been made in this country to offer doctoral degrees other than the Ph.D. to students in a variety of university-based disciplines. Among these have been, and continue to be, the Doctor of Education, Doctor of Fine Arts, Doctor of Arts (allegedly for those interested in careers in college training), Doctor of Engineering, Doctor of Applied Mathematics, Doctor of Psychology (University of Illinois), Doctor of Social Work and others. However, despite the excellence of the curricula in many of these programs and the exemplary pamphlet-published guidelines (1964 to 1967) of the Council of Graduate Schools in the United States, and others, to help in the establishment of high quality standards, the Ph.D. degree still seems to be preferred by the student, the faculties in most of these disciplines, and many leaders in the respective professional societies.

Nursing is one field currently caught up in the dilemma of establishing an educational pattern for its university-based and other leaders. Its past history and current stage of development, often chaotic and emotion laden, strikes me as having numerous parallels with other disciplines which established a more or less agreed upon doctoral pattern of education for themselves one to five decades earlier and reviewed above. The above review thus may serve to sharpen the highlights, next to be reviewed, of the nursing profession's development of its own pattern(s) of quality doctoral education.

## Doctoral Education for Nurses

As reviewed by Leone and Vreeland in Blauch (1955), and Eells and Haswell (1960), the first schools (diploma) of nursing in the United States were founded in 1873, most of them operated by hospitals. (This was during the period of low quality, proprietary education in medicine and most of our professions.) The first State legislature (North Carolina) passed a Nursing Practice Act in 1903, and by 1923 all the States had such regulation for the designee "Registered Nurse." It was in 1909 that the first basic programs in nursing leading to the baccalaureate degree were established in several colleges and universities, with the first such baccalaureate program probably being established at the University of Minnesota. However, the diploma school-RN pattern was the most common. As Brown (1948, p. 161) records, by 1945 there were 46 American universities and colleges that offered "advanced programs" leading to a degree for students who were already R.N.'s. Of these, 31 specialized in preparation only for the baccalaureate; and 15 also offered the master's degree in nursing. (National accreditation of nursing programs followed shortly in 1949.) Brown (p. 161) also records that by the middle 1940's two of these 46 universities already were involved in the doctoral education of nurses and that, in the 1946-47 period, one of the two conferred the B.S. on 122 nurses, M.A. on 97, M.S. on one, and Ph.D. on one. As an historical note, and as will be found in the director of nurses with doctorates (ANA, 1969, p. 467), the first American nurse to earn a doctorate, the Ph.D. in psychology and counseling, was Edith S. Bryan who earned this degree from Johns Hopkins in 1927. Leone and Vreeland (Blauch, 1955, p. 159) also record that during the 1951-52 academic year, baccalaureate degrees were earned by 1,900 nurses, master's degrees by 498, and doctoral degrees by three.

The changing status and the rapidly upgrading educational preparation of nurses in the United States during the past 20 years has been dramatic. There are numerous indices of this changing professional status and development, although most are quite probably a reflection of the changing educational patterns. This latter can be seen in the figures compiled by the ANA (1965 and 1969 editions) and reproduced here in table 1. During 1951-52, 2,317 nurses received academic degrees; with division among the baccalaureate, master's, and doctorate being 83.8, 16.2, and zero or well under 1 percent, respectively. By 1960 these same percentages were 67.7, 32.1, and 0.2; and by 1968 they had changed even further to 56.9, 42.5, and 0.6 percent. From my own review there is reason to believe that the figures in table 1, and those quoted above from Leone and Vreeland, may be reasonably accurate for the numbers of baccalaureate degrees, but they underestimate the actual numbers of nurses who have received a doctorate (in some field) in the same year.

TABLE 1

Graduate Nurse Students Granted Academic Degrees in Nursing from Colleges and Universities, 1951-68

| Academic year | Total no. of graduates | Baccalaureate | | Master's | | Doctorate | |
|---|---|---|---|---|---|---|---|
| | | Number | Percent | Number | Percent | Number | Percent |
| 1968..... | 3,802 | 2,164 | 56.9 | 1,615 | 42.5 | 23 | .6 |
| 1967..... | 3,815 | 2,262 | 59.3 | 1,534 | 40.2 | 19 | .5 |
| 1966..... | 3,679 | 2,386 | 64.8 | 1,279 | 34.8 | 14 | .4 |
| 1965..... | 3,658 | 2,254 | 61.6 | 1,379 | 37.7 | 25 | .7 |
| 1964..... | 3,746 | 2,445 | 65.3 | 1,282 | 34.2 | 19 | .5 |
| 1963..... | 3,481 | 2,319 | 66.6 | 1,149 | 33.0 | 13 | .4 |
| 1962..... | 3,464 | 2,353 | 67.9 | 1,098 | 31.7 | 13 | .4 |
| 1961..... | 3,476 | 2,456 | 70.7 | 1,009 | 29.0 | 11 | .3 |
| 1960..... | 3,723 | 2,520 | 67.7 | 1,197 | 32.1 | 6 | .2 |
| 1959..... | 3,402 | 2,301 | 67.6 | 1,092 | 32.1 | 9 | .3 |
| 1958..... | 3,077 | 2,072 | 67.3 | 997 | 32.4 | 8 | .3 |
| 1957..... | 2,851 | 2,123 | 74.5 | 725 | 25.4 | 3 | .1 |
| 1956..... | 2,648 | 2,094 | 79.1 | 549 | 20.7 | 5 | .2 |
| 1955..... | 2,463 | 1,935 | 78.6 | 526 | 21.3 | 2 | .1 |
| 1954..... | 2,478 | 1,923 | 77.6 | 552 | 22.3 | 3 | .1 |
| 1953..... | 2,474 | 1,966 | 79.5 | 505 | 20.4 | 3 | .1 |
| 1952..... | 2,424 | 1,923 | 79.3 | 498 | 20.6 | 3 | .1 |
| 1951..... | 2,317 | 1,941 | 83.8 | 376 | 16.2 | ... | ... |

Source: ANA: Facts About Nursing, 1965 and 1969 editions.

My tabulation, by year of earned degree, of the data in a Directory of Nurses with Doctorates, a probably more accurate ANA document (Nursing Research, 1969, pp. 465-480; 1970, pp. 273-276), reveals the number of nurses with earned doctorates to be closer to the higher figures shown in table 2 (p. 66) and figure 1 (p. 67). Most readers will be surprised at the figures in table 2. Probably with little or no appreciation of these developments within the academic councils and senates of our universities, nor by most other segments of society, including professional medicine and other allied health fields, the recent growth of

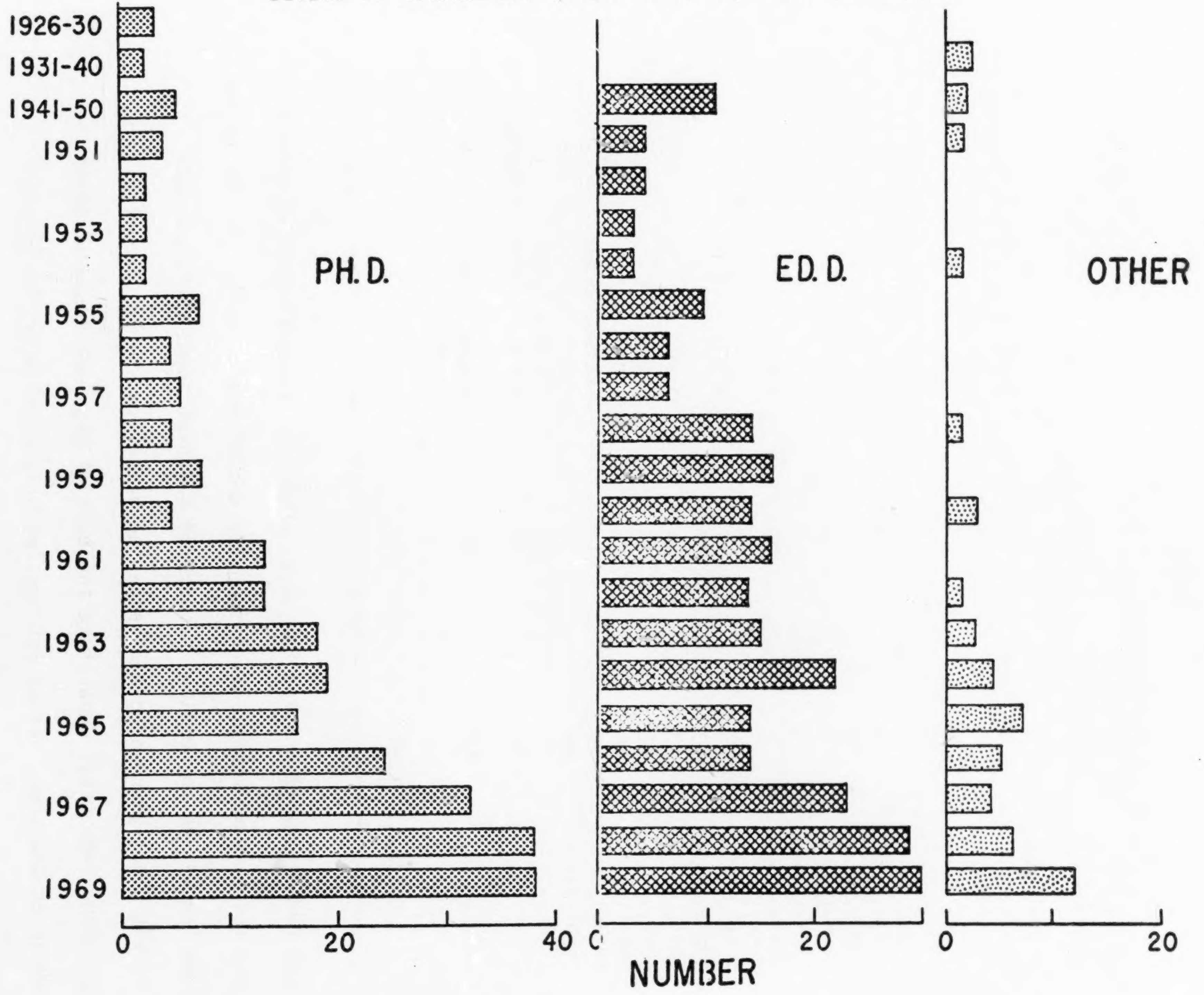
TABLE 2

Numbers of Doctoral Degrees Awarded to Nurses: 1926-69

| Year degree awarded | No. of Ph.D. degrees | No. of Ed.D. degrees | No. of other degrees |
|---|---|---|---|
| 1926-30.... | 3 | -- | |
| 1931-40.... | 2 | -- | 2-MD |
| 1941-50.... | 5 | 15 | 1-JD |
| 1951....... | 4 | 4 | -- |
| 1952....... | 2 | 4 | -- |
| 1953....... | 2 | 3 | -- |
| 1954....... | 2 | 3 | 1-ScD |
| 1955....... | 7 | 9 | -- |
| 1956....... | 4 | 6 | -- |
| 1957....... | 5 | 6 | -- |
| 1958....... | 4 | 14 | 1-MD |
| 1959....... | 7 | 16 | -- |
| 1960....... | 4 | 14 | 1-DPH, 1-ScD |
| 1961....... | 13 | 16 | -- |
| 1962....... | 13 | 14 | 1-MD |
| 1963....... | 18 | 15 | 2-DNSc |
| 1964....... | 19 | 22 | 1-DPH, 2-DNSc, 1-ScD |
| 1965....... | 16 | 14 | 5-DNSc, 2-DPH |
| 1966....... | 24 | 14 | 1-ScD, 1-DNSc, 3-DPH |
| 1967....... | 32 | 23 | 1-DNSc, 3-DPH |
| 1968....... | 38 | 29 | 2-DPH, 2-DNSc, 1-DSHyg, 1-ScD |
| 1969....... | 38 | 30 | 4-DPH, 1-DSHyg, 6-DNSc, 1-DNS |
| Total... | 264 | 271 | -- |

the profession of nursing has paralleled, for example, some aspects of the recent development of engineering and of social work. In the latter two fields, as in nursing, a cadre of doctoral level professionals recently has been added alongside the bachelors and pre-bachelor level personnel who still constitute the bulk of the membership of these three professions. As an interesting historical note the reverse

FIGURE 1. ANNUAL PRODUCTION OF NURSES WITH DOCTORATES



development appears to be occurring in psychology and psychiatry where professional practice has for several decades been the prerogative of the holder of the Ph.D. or M.D. degree but today is filtering down to a variety of other types of mental health workers, some with no college training at all (Matarazzo, 1971). Pressure from Congress and other voices in the Federal Government, as spokesmen for the patient-consumer, may very well extend this development to the field of medicine (e.g. through funding of training programs for a new medical practitioner, the Physicians' Assistant).

Inasmuch as the problem also has plagued every other scholarly discipline and profession (Eells and Haswell, 1969), the question of which was the appropriate doctoral degree for a nurse also found, and continues to find, little consensus. Eells and Haswell (1960, pp. 181-182) list 25 different degrees being awarded to nurses by colleges and universities in 1960. Among these are included four types of doctorates in nursing, per se. These are the Doctor of Nursing (D.N.), Doctor of Nursing Science (D.N.S. or D.N.Sc.), Doctor of Nursing Education (D.N.Ed.), and Doctor of Public Health Nursing (D.P.H.N.). Developments in nursing during the past decade have stirred and prolonged this lack of consensus even further. These developments, which will now be reviewed, have involved nurses themselves operating through the major nursing associations (ANA and NLN), selected universities and their faculties, and the Federal Government.

In 1963 Cleino (1965) conducted a questionnaire survey of 94 nurses holding a doctoral degree and teaching in a baccalaureate or higher degree program. This study was in some ways an extension of a comprehensive study, including on-site visits, conducted a decade earlier by Boyle (1953). Not surprisingly, in view of the full range of historical antecedents reviewed above, the educational backgrounds of the 94 nurse-doctorate holders studied by Cleino in 1963 were so varied as to defy the discovery of many commonalities. Fifty-five of the 94 were diploma school graduates who followed this with baccalaureate training, 24 entered nursing strictly via the baccalaureate in nursing route, and some 15 had earned their baccalaureate in a cognate discipline other than nursing (e.g., biology or psychology). Some had earned this initial degree as early as 1920, and still others as recently as 1955, with the majority receiving theirs after World War II. Sixty-nine of the 94 completed a master's in nursing, and 25 in a field other than nursing (20 in education, two in psychology, two in English, and one in sociology). The pattern of earned doctorates also was variable: 63 had an Ed.D. degree, 30 a Ph.D., and one a Doctor of Science. Their graduate major also varied: 81 of the 94 had majored in professional education or nursing education, three in nursing, and the remaining 10 in other fields. Twenty-seven different institutions granted these 94 doctorates: Teachers College conferring 32; the University of Chicago, seven, and Indiana, Stanford, and New York University, six each. Eleven institutions granted two, three, or four degrees each, and the remaining 11 universities were each represented by one doctorate.

The dates of the doctoral degrees for these 94 recipients ranged from 1946 through 1963, with over half having been conferred after 1958, and one-third after 1960. Twenty-three of the 94 were then serving as deans or heads of departments or divisions of nursing; 14 were serving as administrative heads of graduate programs; 35 were categorized as general faculty without specific title; and the remaining 22 were serving in such other capacities as curriculum coordinator, researcher, unit chairman, and other academic roles. In regard to research experience, 32 of the 94 had served as the head of one or more research projects, about half had been members of a research team, and 40 had completed research projects independently. As would be expected, the Ph.D. holders were more prominent in the latter sample than were holders of the Ed.D. degree. Membership in their university's Graduate Council was reported by two deans and seven graduate members among these 94 nurse-doctorate recipients.

Numerous high level policy discussions on the future directions (including funding) of nursing and nursing education took place at the national, regional, and local levels during the late 1950's and the early 1960's. Delegates not infrequently found themselves serving on committees and thus tacitly, if not officially, simultaneously representing their professional association, their university, and some outside governmental agency such as the USPHS. A flavor of the main currents and crosscurrents which characterized some elements of this era of ferment will be found in Brown (1958), Simmons and Henerson (1964), and Abdellah (1970a, 1970b, 1970c). The latter is an especially valuable and scholarly contribution to the history of higher education because Abdellah, who has served for over a decade in the top echelon nursing grants disbursement offices of the USPHS, has put together a brief but fact-packed historical document of both nursing's search for its professional and scientific identity and the Federal Government's low key fiscal support of this vital enterprise in our Nation's health delivery system. Even as the type of nurse-doctorate Cleino was to survey in 1963 was receiving her training, the following regional and national conferences on the status and future directions of nursing research were being initiated and funded by USPHS (Abdellah, 1970, pp. 243-244). One of the first of these, attended by a small group of nurses and other scientists, was the "National Nursing Research Conference" in Kansas City in July 1958; and the second sponsored by WICHE and entitled the "Conference on Research in Nursing," was held the following month at the University of California in San Francisco. There immediately followed a similar conference at the University of Washington (November 1958) and, in 1959, another under the auspices of the ANA's Research Foundation, and also one at Western Research's School of Nursing. Another WICHE conference took place in 1961 and, during 1965-70 an annual nursing research critique conference has been held under the auspices of the ANA. Three still other highly stimulating conferences focusing on nursing research and theory have been reported in detail in the journal Nursing Research (1967, 16, pp. 108-129; 1968, 17, pp. 196-227; and 1968, 17, pp. 484-512). As one would suspect, and in common with parallel developments in other disciplines, the level of sophistication of nursing research has increased steadily and dramatically during the past 12 years that conferences have been sponsored. One of the major factors helping to initiate and then accelerate this increasing level of sophistication in nursing research has been the increases in nursing's share of the taxpayer's support of science in this country. These increases have paralleled similar increases in most of our health-related sciences, and they are shown in table 3 (p. 73), reproduced from Abdellah (1970, pp. 250-251). That nursing was not overlooked in the post-World War II development of the National Institutes of Health and related funding agencies is clear. The Division of Nursing Resources of the USPHS was formed in 1948 as an outgrowth of the wartime Nurse Corps and with an annual budget of $90,000. This Division of Nursing Resources was combined with the USPHS Division of Public Health Nursing in 1960 and the new combination was called the Division of Nursing with Jessie M. Scott, currently Assistant Surgeon General and Director of the Division of Nursing, as Assistant Director of the Division (Vreeland, 1964). As is shown in table 3 these administrative units made available the first such Federal funds to support research by nurses in 1956. The Nursing Research Study Section was formed within the Division of Nursing

TABLE 3

USPHS Support of Research Training in Nursing: 1956-68

| Year | Nurse Faculty Research Development Grants | Nurse Research Predoctoral Fellowships | Nurse-Scientist Graduate Training Grants | Sundry projects, incl. individual nursing research |
|---|---|---|---|---|
| 1956....... | -- | $125,000 | -- | $ 498,000 |
| 1957....... | -- | 133,000 | -- | 525,300 |
| 1958....... | $ 44,000 | 96,800 | -- | 681,000 |
| 1959....... | 4,400 | 93,000 | -- | 971,900 |
| 1960....... | 4,400 | 221,000 | -- | 1,203,900 |
| 1961....... | 92,000 | 250,000 | -- | 1,357,000 |
| 1962....... | 177,900 | 307,600 | $ 94,700 | 1,298,100 |
| 1963....... | 199,100 | 275,700 | 301,500 | 1,615,300 |
| 1964....... | 384,600 | 308,900 | 284,000 | 1,579,529 |
| 1965....... | 487,000 | 362,100 | 364,000 | 1,465,100 |
| 1966....... | 457,100 | 411,800 | 480,000 | 1,708,600 |
| 1967....... | 360,228 | 461,000 | 483,800 | 1,726,772 |
| 1968....... | 500,000 | 520,000 | 580,000 | 2,091,000 |

in 1955 to review such research applications and, in 1967, its name was changed to the Research in Nursing in Patient Care Study Section. Two recent publications, by Abdellah (1970a, b, and c) and her associates (Research in Nursing: 1955-1968) present a valuable review and synthesis of the 175 research studies funded via this Study Section mechanism for the growing support (shown in table 3, p. 73) of individual nurse-investigators.

Additionally, the Faculty Research Development Grants (FaReDeGs) shown in table 3 were initiated in 1959 on recommendation of the National Advisory Health Council of USPHS (Abdellah, 1970, p. 246). The writer had the privilege subsequently of serving as chairman of this PHS committee as part of the USPHS' (inside and outside) peer review system while serving his term on the Nursing Research Study Section. These grants had two major objectives: (1) to stimulate research capabilities (typically through further graduate education leading to a doctorate) among faculty in graduate nursing programs as well as in selected basic programs that had high potential for but were not now actively engaged in research; and (2) as "seed money" to support potential investigators in small pilot studies for exploration of research problems not sufficiently developed for submission to the regular research grants program.

During 1959-68 a total of 18 educational institutions participated in the FaReDeG program and these, taken from Abdellah (1970, p. 247) are listed in table 4 (p. 75). By 1966 it appeared that the program

TABLE 4

Universities and One Service Agency Provided Funds for Faculty Research Development Grants (FaReDeGs)

| Institution | Year initiated |
|---|---|
| University of California, Los Angeles | 1959 |
| University of Washington, Seattle | 1959 |
| New York State Department of Mental Hygiene, Syracuse, New York | 1960 |
| Boston University | 1960 |
| Teachers College, Columbia University, New York | 1961 |
| Emory University, Atlanta | 1961 |
| Ohio State University, Columbus | 1962 |
| Yale University, New Haven, Connecticut | 1962 |
| Case Western Reserve University, Cleveland | 1963 |
| University of Minnesota, Minneapolis | 1963 |
| Columbia Union College, Takoma Park, Maryland | 1964 |
| University of Pennsylvania, Philadelphia | 1964 |
| University of Florida, Gainesville | 1964 |
| University of Arizona, Tucson | 1965 |
| Boston College | 1965 |
| Wayne State University, Detroit | 1965 |
| University of Utah, Salt Lake City | 1965 |
| Johns Hopkins University, School of Hygiene and Public Health, Baltimore | 1965 |
| Indiana University, Indianapolis | 1966 |

had fulfilled its nursing faculty upgrading and research pump priming objectives and it began to be phased out and replaced by Research Development Grants. Shortly before and concurrent with this last development, and acknowledging the still too small supply of doctoral level nurse-scientists with adequate research training, the USPHS' Division of Nursing began a program of support designed to increase the research talent of nurses by sponsoring (and funding) their Ph.D. level education in other disciplines within the university which provide concepts and a data base potentially useful in nursing practice. These were called Nurse-Scientist Graduate Training Grants, were initiated in 1962, and by 1970-71 have been funded in nine universities (see table 5, p. 77). For example, beginning in 1966 at Teachers College, after very vigorous recruiting and initial screening by this graduate college's Department of Nursing, 10 very talented young nurses with baccalaureate degrees have been receiving full tuition and NIH predoctoral stipend traineeships under this grant to help support their full-time Ph.D. study in the following cognate disciplines: Anthropology, Psychology, and Sociology. At the University of Illinois comparable arrangements have been made by the School of Nursing for "borrowed" Ph.D. education of its beginning nurse scientists in the departments of Anatomy, Microbiology and Physiology. Currently 34 departments have such Nurse-Scientist training grants, and their graduates are subtly but eagerly being wooed and recruited by many of our country's most prestigious nursing faculties.

TABLE 5

Universities Receiving Nurse Scientist Training Grants

| Institution | Year initiated | Participating disciplines | Degree offered |
|---|---|---|---|
| Boston University................ | 1962 | Anthropology, Biology, Psychology, Sociology | Ph.D. |
| Case Western Reserve University.. | 1963 | Anthropology, Sociology, Biology, Physiology, Psychology | Ph.D. |
| University of Washington......... | 1963 | Anthropology, Microbiology, Physiology, Sociology | Ph.D. |
| University of Kansas............. | 1965 | Anatomy, Anthropology, Physiology, Psychology, Sociology, Communication and Human Relations | Ph.D. |
| Teachers College, Columbia Univ.. | 1966 | Anthropology, Psychology, Sociology | Ph.D. |
| University of Colorado........... | 1967 | Anthropology, Physiology, Psychology, Sociology | Ph.D. |
| University of Arizona............ | 1967 | Anthropology, Sociology, Physiology | Ph.D. |
| University of Illinois........... | 1969 | Anatomy, Microbiology, Physiology | Ph.D. |
| University of Pittsburgh......... | 1970 | Research Training in Clinical Nursing, Maternity Nursing and Pediatric Nursing | Ph.D. |

Beginning in 1955 and concurrent with these other developments has been another well known USPHS (NIH) mechanism of increasing this country's supply of high level scholar-scientists, the Special Predoctoral Research Fellowship which is applied for and awarded directly to the doctoral student (table 3, p. 73). As of September, 1970, the USPHS Division of Nursing was supporting 156 such nurses in doctoral training. Since 1967, the writer again has been privileged to serve on the joint-committee reviewing and recommending approval of these Nurse-Scientist and Special Fellowship awards, serving as chairman of the former of the two. That these two mechanisms for producing Ph.D. nurses are working can be seen by comparing the years of initiation of the Research Fellowship Program and Nurse-Scientist Training Program (table 3) with the change in output of numbers of nurse-Ph.D.'s (figure 1, p. 67).

Funds, Federal or otherwise, are but one ingredient for a science and profession seeking to find the most effective means for serving society. Nursing leadership from the universities and from the two professional societies has added this all important voice in guiding, as well as in response, to these fiscal and other developments in nursing during the past three decades. Even as the nurses in the sample reported on by Cleino (1965) were still earning their Ed.D., Ph.D. and other doctoral degrees, and the USPHS was using its powerful fiscal powers (table 3) to help nursing meet its share of the total responsibility for our nation's health and welfare, nursing educators and administrators were responsibly trying to help guide the several (and not always synchronized) developments then in process. Reports of some aspects of this leadership role played by the professional educator during the 1950's and 1960's abound. One of the most thoughtful of these is contained in a publication entitled A Dialogue on Approaches to Doctoral Preparation (Nursing Research, 1966, Volume 5, No. 2, pp. 48-108; and continued in 1966, Volume 5, No. 3, pp. 36-63).

The young nurse-scientist trainees at Western Reserve University and their faculty, taking note of the several doctoral degree options then open and being discussed for the pursuit of doctoral education for nurses, invited four distinguished nursing leaders to their campus in May 1965 for a symposium on this topic. Participants were Dr. Mary S. Tschudin, Dean of the University of Washington's School of Nursing, Dr. Hildegard E. Peplau, Professor of Psychiatric Nursing at Rutgers State University (Newark) and today president of the American Nurses' Association, Dr. Rozella M. Schlotfeldt, Dean of Western Reserve's Frances Payne Bolton School of Nursing, and Dr. Martha E. Rogers, Chairman, Department of Nurse Education at New York University. These four no doubt were chosen as spokesmen for the divergent opinions then being discussed on the national nursing scene.

By the early 1960's the most practicable options which various segments of nursing leadership had identified for the nurse seeking her doctorate were: (a) a strong, science-backed Ph.D. in Nursing (or Nursing Science), (b) the Ph.D. in a cognate discipline in one of the biological, natural, or behavioral sciences basic to nursing such as physiology, anatomy, psychology, sociology, etc., (c) a strong professional degree exclusively for nursing such as the Doctor of Nursing (D.N.) or Doctor of Nursing Science (D.N.Sc.), or (d) the "weaker," but then currently more available generic professional degree in education, the Ed.D.

Study of figure 1 (p. 67) will remind the reader that by the early 1960's the Ed.D. degree (probably from Teachers College), although still a rarity, was the degree held most commonly by nurses with a doctorate. Yet it was the hope of some that the USPHS-funded Special Predoctoral Fellowship, the FaReDeG; and the Nurse-Scientist Training Programs had helped create the conditions for nursing to consider alternatives to the Ed.D. and in this way keep nursing as a discipline in the colleges of Arts and Sciences, with their all-important, loosely-affiliated but powerful Graduate School Councils or Faculties, rather than relegate nursing, as a discipline, to a separate college outside the Graduate School such as the School of Education, or Pharmacy, or Home Economics.

The four symposium panelists met their charge well. They quickly dispensed with the Ed.D. option by never mentioning it. Drs. Tschudin and Schlotfeldt, no doubt reflecting the fact that in their two universities, nursing already had been accepted as a "hard" science by its respective Graduate Council, opted for the traditional, science-backed Ph.D. in Nursing as the path which should be followed. The administrators and nursing faculties of each of these two universities had had experience helping their most talented young nurses apply for and successfully compete for the Special Predoctoral Research Fellowships which funded their study for a Ph.D. in some other university discipline. They also had concurrently helped upgrade the competence of many of their own previously master's degree level nursing faculty by doctoral study with the help of a FaReDeG. Additionally, and also concurrently, their two faculties had applied for and had had funded the third stage of this interrelated process, the Nurse-Scientist Training Grant, which again allowed them to fund the doctoral education (Ph.D.) of talented young nurses in other sciences but this time under the administrative "umbrella" of a training grant to the school of nursing rather than as a predoctoral fellowship awarded directly to a young, "itinerant," nurse-scientist.

Given these earlier and current histories it was not unexpected that Drs. Schlotfeldt and Tschudin should forcefully opt, no holds barred, for the strong Ph.D. in Nursing as the goal. In this they were joined by the other two symposium panelists, Drs. Rogers and Peplau. The differences which emerged among the four panelists, important as they were, strike me as a reader as boiling down essentially to differences in the "timing" of the end point of this important goal. Drs. Tschudin and Schlotfeldt foresaw the educational-administrative goal, ultimately, as a Ph.D. in Nursing comparable in its quality, for example, to today's Ph.D. in Physics, Biochemistry, or Psychology.

However, they felt that nursing science was not in 1965 quite developed to the point where a sufficient quality of teaching, research, and scholarship in nursing permitted this next and final step. Accordingly they were willing to use the interim or stopgap measure of "borrowing" the all-important elements of doctoral education from currently more established sister disciplines within the university. They correctly, in my view, understood that in all fields scientific knowledge quickly becomes obsolescent and thus surmised that the essence of a doctoral education is process and not content, per se, and were gambling to back up their personal intuition that, by borrowing exposure to this process from teachers (and the attendant science) in better established fields, they could in the mid-1960's infuse sufficient numbers of such doctoral level young nurses into nursing and thus considerably accelerate the development of nursing science as an independent discipline.

Dr. Martha Rogers considered this approach too timid, no doubt because she and her New York University School of Education nursing faculty already were offering a Ph.D. in Nursing. She left no question that she disagreed with these two panelists, and the third, in her feeling that one need not wait for a more viable nursing science, whatever that ultimately means, with its attendant knowledge base and beginning but demonstrably robust miniature nursing theories. Nursing she argued is currently a very broadly based health discipline and as such could utilize even in 1965, admittedly under the administrative umbrella of the School of Education at New York University, the biological and social sciences offered in other divisions of the university in a synthesis which is distinctively different from all other disciplines. Her university offered then, and still does today, a Ph.D. in Nursing, with a minor in physiology, or sociology, or education, and not the other way around as was being done by some nursing school's with Nurse-Scientist Training Grants.

Dr. Peplau, also reflecting her own training and well-known reputation as a skilled psychotherapist and other mental health practitioner, as well as teacher and scholar, agreed with Drs. Schlotfeldt and Tschudin that the ultimate goal was Dr. Roger's concept of the Ph.D. in Nursing, but with a better developed nursing science base than currently existed, by implication even at Dr. Rogers' university. But she differed from her three colleagues in also suggesting a second alternative to be available parallel and concurrent with the "hard" Ph.D. in Nursing, the Doctor of Nursing Science. For Dr. Peplau there are basically only two types of university degrees: the university degree (Ph.D.) and the occupational degree (the Ed.D. or D.N.Sc.). Dr. Peplau, probably reflecting her observations of the then two-decades' long acrimonious debate within the discipline of psychology on the alleged inadvisability of awarding the Ph.D. degree both to its hoped for future scientists and teachers as well as its practitioners, opted from the outset for two different degrees for future specialists in these comparable nursing career pathways. The doctoral nurse with a hard Ph.D. in a cognate discipline (and ultimately in nursing) would help generate new knowledge, and the doctoral nurse with a D.N.Sc. would apply this new knowledge, some of it "hot off the press."

This then was the state of affairs in 1965. The pre-1960, predominantly Ed.D. nurse university educators and their many constituencies had, in the next decade and with USPHS help in the form of fellowships, research grants to individual nurse-investigators, faculty development grants, and a few nurse-scientist training grants, reached the point where the Ph.D. in Nursing was the desired and almost unanimous objective as preparation for the nursing scientist, scholar, educator, and leader of the future. Informed majority opinion favored an interim Ph.D. in another discipline as a method of insuring quality and thereby escaping some of the problems faced by seemingly short-lived disciplines offering, for example, a Ph.D. in Library Science, Home Economics, etc. One voice among the four representatives of this informed nursing opinion opted for the Ph.D. in Nursing now, whereas another opted for some variant of the D.N. professional degree along with the Ph.D.

The editor of Nursing Forum invited response to the four symposium panelists; this was published in the next issue, and did much to further the original dialogue. In her response, Dr. Helen Nahm, of the School of Nursing at the University of California at San Francisco supported both a Ph.D. or a D.N. degree for nurses, a position no doubt reflecting the fact that she and her university colleagues had the year before (1964) initiated a Doctor of Nursing Science (D.N.S.) program. Another respondent, Dr. Elizabeth Kemble, raised such additional important questions as (a) are there other career goals which need be considered, for example, high level teacher, administrator, or clinical-nurse specialist, (b) what percentage of this country's then 850,000 RN's could be expected to prepare for the doctorate, (c) how will Drs. Tschudin and Schlotfeldt assure that a nurse who obtains a Ph.D. in psychology, for example, will not leave nursing and forever henceforth remain in this new discipline in which she received her doctorate. Dr. Kemble was followed by Dr. Faye G. Abdellah who very skillfully portrayed the seeming advantages and disadvantages of the two routes open to nursing, the Ph.D. or D.N.Sc. While encouraging development of the latter, especially for nurses wishing to become specialists in a clinical nursing area, she seemed to favor the Ph.D. in Nursing, with a Ph.D. in some other basic science discipline as the best interim option. She also encouraged new, experimental doctoral programs for nurses, with suitable follow-up and built-in evaluation. In a subsequent series of three papers, Abdellah (1970a; b; c) presents an extended and statesmenlike review of these and numerous interrelated issues involved in nursing science, its past, present, and probable future. Other respondents to the four panelists offered still additional thought-provoking views. In particular, Dr. Betty Jo Hadley, then a nurse with a new Ph.D. in Sociology, stressed the need for nurses with Ph.D.'s in other fields to contribute to nursing science in order that a D.N.Sc., as the highest professional nursing degree, would both be a viable and a highly sought after degree. An especially valuable and timely example of what nurses with a Ph.D. in Anthropology can offer nursing, for example, is contained in the recent book by Leininger (1970), a nurse-anthropologist who succeeded Mary Tschudin as Dean of the School of Nursing at the University of Washington.

During the 5 years that have elapsed since this important four-participant symposium at Western Reserve, the issues so clearly verbalized by them as representatives of this country's university-educator nurses have crystalized even further. Today the goal of a Ph.D. in Nursing must seem closer to many of the nursing personnel within our universities, the professional associations, government, and other important constituencies. To those of us in other disciplines within the university, nursing's next steps will be of keen interest. There are at least two reasons for our interest. First because the development of new knowledge, new competencies, or the potential for these, no matter from which discipline, has always been welcomed and applauded by a university worthy of the name. The second is more personal and probably is of interest primarily to a peculiar breed of individual within our university (or science) today, and in which strange breed the present writer acknowledges membership. This is that growing group of us who are interested in the sociology of the professions or the sciences. How nursing educators and other nursing leaders behave in the present and next stage of their developing discipline in regard to the doctoral education of nurses is of as much interest to, and holds as much fascination for us as, for examples, any novel, mystery, detective story or, possibly more to the point, well-executed play on the legitimate stage, or scholarly treatise on the immediate aftermath on higher education of Flexner's travels to the early 20th century medical schools of America. I, for one, am most eager for the next, and the next, chapters in this educational or, more appropriately, human drama. The following remarks are offered as partial tuition for my privilege of following the earlier and the next phase(s) of this drama.

## Reflections of a Non-Nurse on Doctoral Education for Nurses

By now the reader is aware that although a psychologist by profession I have spent the past decade in, on, or around various councils associated with these developments in nursing. I have reviewed countless individual applications from nurses for predoctoral fellowships and their own nursing research grants. In a decade I have site visited in connection with the FaReDeG and the Nurse-Scientist Training Programs most of the universities involved in doctoral education for nurses, talked to their graduate students, faculty, nursing deans, colleagues in cognate disciplines, members of their Graduate Councils, deans of their Graduate Schools, and a university president or two. No doubt some faculty or graduate student reader of this will remember my fairly standard "innocent" question which fortunately and invariably cut through the otherwise time-wasting pleasantries: "I simply do not understand why a nurse would want to give up taking temperatures, making beds, and otherwise comforting patients -- the real nursing --

which she does so well to fool with this business of research which she clearly does so poorly. Can you honestly tell me why you would want to give up nursing for science?" I will not elaborate on the responses, not always predictable, from young student and seasoned faculty member alike, but will relate that many of these responses were heartwarming and, by themselves, often made the vigors of such a site visit worthwhile. What, then, have I concluded as a teacher, researcher, and practitioner from another field who has concurrently, because of this country's peer review system, been privileged to observe nursing face the challenge of deciding upon the form of its doctorate and, thus, clearly the pattern of its future development.

Probably my most important personal conclusion is that nursing has unwittingly wasted effort in soul-searching whether or not its data base and other important ingredients of quality were adequate for a "hard" Ph.D. degree in nursing. I would only ask my friends in nursing to speculate on whether or not even as much "hard science" as now exists in nursing existed in most of these disciplines at the time (circa 1890) the "hard" Ph.D. degree was instituted in Philosophy, Physics, Chemistry, Psychology, History, English Literature, or the then other fields in this country's young university-based Arts and Sciences colleges? I will not as a non-nurse take a position on whether or not the Ph.D. programs in nursing at, for example, New York University or Pittsburgh University or the others listed in table 6 (p. 89) represent quality or "hard" degrees. Other nurses and the

TABLE 6

Doctoral Program in Nursing Currently Being Offered

| University | Degree offered | Field(s) | Year initiated |
|---|---|---|---|
| Teachers College........... | Ed.D. | Nursing Education<br>Nursing Administration | ca 1920's |
| New York University........ | Ph.D.<br>Ed.D. | Nursing<br>Nursing Education<br>Nursing Administration<br>Nursing Specialties | 1934 |
| University of Pittsburgh... | Ph.D. | Maternity Nursing<br>Pediatric Nursing | 1954 |
| Boston University.......... | DNS | Psychiatric Nursing | 1960 |
| University of California...<br>San Francisco | DNS | Medical-Surgical<br>Maternal-Child<br>Psychiatric<br>Community Health | 1964 |
| Catholic University........ | DNS | Psychiatric Nursing<br>Medical-Surgical | 1967 |

immediate and long-range future histories of these programs can best do this. I will, however, agree with Dr. Martha Rogers' comments in the 1965 symposium reviewed above that it is primarily the self-concept of nurses which will determine when the Ph.D. in nursing is a quality degree and not, and this will shock some nurses, the mythical stage of development of the science of nursing. For who is to decide when the empirical knowledge and theoretical foundation in nursing is adequate for a substantive Ph.D. in nursing? My own view is that a faculty with a nucleus of five to 10 nurses with Ph.D.'s, and all of whom are vigorous, some nationally visible, several of whom have active research programs underway, with research that is being quoted by other investigators, more than constitutes a critical mass for a Ph.D. in nursing which would be as robust as fully half the so-called hard Ph.D. degrees currently being offered by all the disciplines in this country.

I am aware that this last comment will jolt many nursing educators--although few non-nursing educators will think it other than a fair assessment of the present development of the sciences in many of the liberal arts and sciences disciplines. Another jolt will be felt by my nursing colleagues when I further add that very few non-nurse educators in their own universities will pay much attention to the "quality" of the Ph.D. in nursing they offer. The reason is simple. Whereas today one physicist or historian finds it next to impossible to judge the quality of work of a colleague within his own discipline who is in a different area of subspecialization, most of us will, within very wide limits, leave to nurses themselves the evaluation of the quality of the doctoral education and doctoral research of their Ph.D. students in nursing.

There always has been an unwritten rule among university Graduate Councils that acknowledges the different stages of development within the different learned disciplines and evidence for this can be found in Berelson (1960) and other sources, although either membership on a Graduate Council or review in one's own library of a sampling of dissertations across different disciplines for any given year will quickly confirm this point. For example, given the degree of a development of each of the two fields, specialists within each discipline and, in a very general way, final oral examiners appointed by a Graduate Council from other disciplines, simply will expect from a Ph.D. student in theoretical physics a dissertation based on more reliably based empirical and theoretical considerations than they concurrently will from a student in French Literature, Anthropology, Sociology, Psychology, Sociology and other fields.

This reference to medicine allows me to make another point; the relationship of a profession's self-concept to the doctoral degree it opts to offer its students. The Medieval educators at Bologna, Paris, and their 17th and 18th century successors in Germany offered the Ph.D. degree primarily on the basis of faith, not substance. There was no science or other data base to speak of in the sense that we know this in the present century. Our first medical colleges offered the M.B. or more prestigious M.D. degree with little or no data base until Flexner's report set into motion a series of steps to add quality to the doctorate in medicine.

In 1910, there being no NIH or USPHS with the equivalent of Nurse-Scientist Training Grants for the surviving schools of medicine, these latter without timidity evoked a nonetheless comparable mechanism for their development by unilaterally incorporating the then robustly developing sciences of Anatomy, Biochemistry, and Physiology as the first 2 years of the 4-year doctor of medicine curriculum. As we all know, this bold stroke added materially to what would soon be an unprecedented acceleration of basic medical knowledge. Interestingly the M.D. degree during 1910 to possibly 1950 was considered a weak professional-technical degree. Both the faculties awarding it, and those receiving it, felt that, in contrast to the university's Ph.D. degree, the M.D. was a technical-occupational degree with much in common with the present generation of nurses' Ed.D. or D.N. degree. However, it is not difficult to imagine the early medical faculty of Johns Hopkins or Harvard having opted to call their new 4-year degree a Ph.D. degree. For various reasons but, I suspect, mostly the negative self-concept resulting from the recognition of the poor quality of this country's then numerous proprietary school holders of M.D. degrees, the decision was made that the doctorate for the better trained early 20th century physician would remain the M.D. and not be changed to a Ph.D. in medicine. However, as we know by 1950 the quality of the medical school curriculum in many of this country's medical colleges rivaled, in vigor, rigor, and substance, the Ph.D. in most disciplines. It is a fair guess that by 1970 the typical American medical student who, in 4 years, successfully masters the curriculum in Genetics, Cell Biology, Physiology, Biochemistry, Pharmacology, etc., and then goes on to his more practice-oriented medical specialization, completes a program of basic study and advanced specialization comparable to the intellectual hurdle of a student earning a Ph.D. in any university discipline currently extant.

In effect, what I am saying is that the university M.D.-faculty member of 1910, with little scientific background and some reason for a negative self-image, opted for the M.D. as the university degree for this discipline; whereas today's university M.D.-faculty member, often as well-trained in science, and pursuing his own basic research just as vigorously and creatively as his medical school Ph.D. counterpart, would very likely opt for the Ph.D. degree for the young physician his school graduates. I have elsewhere, as have others, reviewed the literature which shows that by the objective criteria currently extant (grades in college, IQ score, etc.) there are today and there has been for decades no differences among students or practitioners representing the Ph.D. in a variety of disciplines, the M.D., the D.D.S., and the L.L.B. (or J.D.).

Thus, the degree we offer our successful students in these fields is today more a reflection of the personal-sociological factors influencing the earlier choice made by the faculty members in that discipline than it is differences in the students for whom these disciplines attempt to provide an appropriate environment and the role models for life-long learning.

In sum, then, I trust I have made clear why I believe nursing has adequate historical precedents from which to offer a substantive Ph.D. in nursing today. Repeated inspection by me of the GRE scores and college GPAs of the nurses applying for Special Predoctoral Research Fellowships, or their nursing school's Nurse-Scientist Training Grant traineeships, plus my site visit interviews with scores and scores of them, leaves *no* question in my mind that the nurses studying for their doctorates are, in terms of their *median* qualifications and the full *range* of their talent, the equal of our national pool of doctoral students in law, medicine, dentistry, and the university Ph.D. sciences. If the reader is a nurse who quips that I obviously do not know the quality of nurses studying for doctorates at some of our less well-known universities, I would ask her only to walk within her own university to these other departments and schools and, in the dean's office of each school (or department), study the annually published range of scores of students on the MCAT, GRE, and other comparable national examination for each of these disciplines. Whereas we all are aware, for example, that some medical schools or university departments select students whose GPA's average A-, and MCATs or GREs average 700, inspection of these annually published figures will reveal (without names) some equally accredited medical school counterparts to these which accept students, with GREs and MCATs *considerably below* the national average of 500. Among the learned disciplines offering the "hard" Ph.D. there exist today departments (disciplines) in our accredited universities which attract (and graduate) Ph.D.'s with *median* GREs below 400! This latter merely highlights a point related to my earlier one; namely, that just as learned disciplines have developed and are developing at different rates as a *national resource*, these same disciplines have developed and continue to develop at considerably different rates of progress within the same university. Thus at one institution Physics may be robust, whereas Psychology may be only just beginning. The former department understandable would attract and turn out a higher quality Ph.D. from this university. At a second university, for any of a variety of uniquely indigenous factors, just the reverse will be true, and Physics is attracting and graduating "weaker" students. Had Physics or Psychology opted on a national basis some 70 years ago for an applied degree, such as did social work, for example, their development within any given university or, in their pooling as a national resource (discipline) would undoubtedly have been much slower.

Turning to another personal reflection, I would be unfair if I failed to acknowledge another concern that many leaders in nursing have experienced; namely, what is the nurse with a Ph.D.? Is she an anatomist, or a physiologist, or a psychologist, or a sociologist, or is she a nurse, or is she both, or is she still some other strange breed of human?

My own view on this crucial question is that the answer, once again, will depend upon an individual's (or a profession's) self concept. To personalize for a moment, although I am convinced that what I will describe is a fairly common experience for university teachers, the day I received my Ph.D. in 1952 I considered myself a clinical psychologist. I then embarked upon a career as a beginning teacher, investigator, and practitioner and found that, not infrequently, my continued

participation and development in these areas required that I "trespass" into psychosomatic medicine and, concurrently, experimental and physiological psychology. At this point my self-concept as clinical psychologist no longer "felt" comfortable, and I conceived myself a generic psychologist. Interestingly, neither my medical (or graduate) students, nor my own research endeavors acknowledged this new but still limited self concept and their demands forced me to question my self concept of psychologist, for soon I was forced by necessity to "trespass" into Sociology and Anthropology, sometimes literature and, most importantly, into the philosophy of science where, in the latter, I voraciously read all I could in order to better understand my own research, the penetrating and insightful questions of my students and, in reality, myself. This brief history will evoke a grin of self-recognition in many readers.
At some point, I do not know for sure when, I discovered that unlike humans and university departmental administrative organizations, science (and knowledge more generally) knows no neat little structuring according to disciplines. Accordingly, in a slow process over almost two decades I concluded that it was an accident that I spent 4 years pursuing an education in a particular discipline (the one in which I hold a Ph.D.), and acknowledged that the education I received during the next 18 years pursuing my own developing intellectual interests no longer, ipso facto, narrowly confined me to membership in this discipline. In common with who knows how many hundreds of thousands of other fortunate souls who preceded me or, concurrently, were having comparable experiences, I

recognized that the content, thrust, and human bias ("flavor") of my lectures and research program could just as easily reflect a Ph.D. in experimental psychology, sociology, or psychiatry (medicine), as they do my actual earlier background in clinical psychology.

What does this suggest for the present discussion? Merely some truisms already clearly understood by nursing educators but, I believe, needing re-examination. Moral one: nursing should seek to continue to stress the "process" of learning for its doctoral students and give less emphasis to theories of nursing science, nursing practice, nursing education, etc. Darkness and ignorance is the foil of all the disciplines and no one discipline has a monopoly on any particular subject matter. Moral two: choose any name you wish for the nurse with a Ph.D., for the name will only apply during an interim period in her own development. Is a physician doing research at the forefront of biochemistry a physician or a biochemist? I believe he is both, neither, or any other name he currently gives himself (e.g., specialist in enzyme metabolism or an enzyme geneticist). If I were on the faculty of a school of nursing offering or considering offering a Ph.D. in nursing I would copy the other professions, and boldly and without apology borrow from any of the natural, biological, and behavioral sciences whatever I felt necessary for the mix my faculty colleagues and I felt would make a good curriculum for teaching "process" at our own university, with its own unique characteristics, and next add to this the appropriate nursing content and image for a nursing doctorate (Ph.D.).

Quality control would come from within the university by (a) my own nursing faculty, and (b) colleagues in other disciplines on the Graduate Council and, from without the university, by (c) national and regional educational accrediting bodies, professional association accrediting boards, NIH, NSF and other peer review mechanisms and, most importantly, (d) from what my graduates were doing 5 to 10 years after graduation.

And what might I call such a young graduate with a Ph.D. in Nursing? Any of a number of things, and possibly initially by a different name at each of several universities until national experience made one of these names "feel" better. Such a graduate, Ph.D.-holder, certainly would be a doctor, just as is an economist, physicist, historian, physician, or anthropologist. But this is a generic title. For a second title more appropriate to his membership in and identification with (but only in his younger years) a particular learned discipline, I doubt that I would continue the appellation "nurse." This title is too identified in our society with the hospital diploma school, or baccalaureate level, R.N. Instead, after discussion within my own nursing faculty, I might boldly decide that our new Ph.D. in nursing program would be called a Ph.D. program for educating Behavioral Biologists. (This step would be no different from that of the growing numbers of departments now offering, after consultation with no one, a Ph.D. in Biopsychology, Neuroscience, Behavioral Genetics, and a host of other new disciplines, each of which was created, typically by a small faculty numbering under 10, during the past 5 or so years.)

I would abandon the title Nurse, or the current, interim Nurse-Scientist, in favor of a title like Behavioral Biologist because of several considerations. First, this title "feels good" to me, and probably would to my students. Second, the RN-BSN background, plus the 4-year curriculum for the current nursing and nurse-scientist Ph.D.'s consist of core and advanced courses in biology, sociology, and in some instances, advanced (specialized) nursing. Third, unlike the physician or surgeon who currently still specializes in the treatment of, and research on, the internal-organic aspects of human functioning, the nurse-scientist and practitioner comes to her new doctoral responsibilities from a long-established nursing tradition which has always stressed the emotional-social-behavioral aspects of human functioning as much as the physiological aspects. Thus, the adjective "Behavioral" before Biologist merely acknowledges this historical and current element associated with nursing as a profession.

And what problem areas (including research) would this scientist-professional call her own? Here again self image is important. Study of any textbooks in psychology, medicine, physics or other fields will quickly reveal that although disciplines (and professions) have clearly distinctive titles, their subject matter does not. Physics did not hesitate to "absorb" knowledge from other fields in its vigorous pursuit of molecular biology, nor did medicine ask permission of anyone to include biochemistry, genetics, and other basic sciences into its curriculum. Perusal of any introductory psychology textbook will reveal much in this discipline which was contributed by the physiologist Pavlov, the physician Freud, and numerous other workers in these two and other disciplines. A 4-year curriculum, and related textbooks, leading to a Ph.D. in Nursing can legitimately even today be built around such graduate courses as anatomy, physiology, biochemistry, psychology, sociology, anthropology, statistics, research design, and epidemiology to name a few examples. As decided by each university's own nursing faculty, appropriate ones of these courses (and still others) could be taken in the first 2 years of graduate study. This could next be followed by 2 years of study in specialized graduate courses in nursing, including the writing of a dissertation in a nursing area.

And what are some of these areas that nursing, again boldly and without asking anyone, might "usurp" for itself? There literally are thousands of such areas. The following are some that occur to me as ones that (a) sorely need study and the better professional practice which would result, (b) are today not being pursued vigorously by any discipline, and (c) fall within the experience boundaries of nursing: (1) sleep (2) diet and weight control (3) insomnia (4) fluoridation and its resistance (5) the "sick role" in different subcultures within our society (6) labor associated with childbirth (7) mother-infant and mother-child interactions (8) pain (9) rapport in human relationships at stress (10) delivery systems for health care. Many other examples will occur to the reader.

The ex BSN-RN, now Behavioral Biologist, will find in each of these fields of study, and professional practice with patients, challenges which will add much needed new scientific information as well as relief for a variety of nagging individual and social ills.

A 4-year program leading to a Ph.D. in Behavioral Biology offered by selected graduate schools of nursing will also help solve another very important social inequity -- the national waste of talent among our Nation's young women. I have served on my own medical school's Admissions Committee for 12 years and am yearly appalled at the fact that only a small percent of the applicants (ours and nationally) are women. We all know that the high intelligence required for doctoral education is equally distributed between the two sexes. Yet annually only a small proportion of our young women earn doctorates in any field, The reasons are many, but one of them is that no doctoral field is, ipso facto, ideally suited to women.

In my opinion, Behavioral Biology is such a field and, if a School of Nursing offered such a curriculum, it would have no trouble recruiting many talented young women now either lost to higher education or, alternately, entering related fields such as Psychology, a field unusual in that one-third of its members are women.

There will be readers who for any of a number of legitimate reasons will not be comfortable with my title, Behavioral Biology, for the nurse-doctorate. I propose it here not because I am wedded to such a name, but only to let it serve as an example of a direction I hope nursing leadership will pursue in its further development as a robust doctoral specialty. I believe nursing can offer a hard Ph.D. in nursing today. Do you?

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# PH.D. IN NURSING

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New York University awarded its first Ph.D. degree to a nurse through the educational unit in nursing nearly 40 years ago. In the first 25 years following this award only a small number of nurses matriculated for doctoral study and an even smaller number completed the doctoral requirements and graduated. Though students met the same requirements for admission, achievement, and graduation as did other doctoral students in this institution, substantive, scholarly knowledge in nursing was not encompassed in the course of study. A doctoral seminar in nursing provided opportunity to discuss nursing's problems but the need for pursuit of a body of theoretical knowledge in nursing was largely unrecognized.

By the 1950's stirrings of educational change in nursing, long in the brewing, began to be felt. Baccalaureate degree programs in nursing were increasing in number and community college programs in nursing (to replace hospital schools) were initiated. Federal monies in support of graduate education in nursing became available, setting in motion a sharp escalation in the numbers of nurses enrolling in master's degree programs.

At the same time that these changes were taking place the Division also enbarked on the long-range task of trying to identify and develop a body of scientific knowledge specific to nursing. Faculty committees, workshops, and seminars were instituted. Three doctoral candidates, in a joint effort, focused their dissertations on trying to evolve principles of nursing with two outcomes. First, they all secured their doctoral degrees and second, it was evident that the approach which they used (an approach which interestingly enough was also being suggested by nurses in other places) would not provide the theoretical base nursing sorely needed.

Many blind alleys were explored. Difficulties in thinking in terms of broad principles in contrast to nursing's tradition of dealing with facts and rules of procedure (not infrequently referred to today as process) sometimes blocked progress. Nonetheless direction was maintained and the bare bones of potentially productive ideas began to accumulate flesh and blood.

Before 1960 these ideas though still embryonic were already being incorporated into the doctoral program. Doctoral research began to focus on human beings rather than on nurses and their functions. Research findings began to appear that could later take on new and enlarged meanings as they would become lodged within an organized conceptual system.

A logical plan for incorporating nursing's emerging body of abstract knowledge into the instructional process was evident. Quite properly this had been initiated first in the doctoral program. The elaboration of a body of abstract knowledge is dependent on scientists and scholars, in whatever the given field, for its accomplishment.

A population from which to recruit doctoral students in nursing began to emerge. Doctoral student enrollments edged upward, in part because the habit of "going to school" had been established, in part because universities were beginning to bear down on nurses for proper "educational credentials" for university faculty membership and for other reasons. Only a few applicants recognized the doctoral degree as a symbol of scholarly, scientific learning having direct relevance to the improvement of nursing education and nursing practice. Only as these students became able to perceive nursing as a learned profession and to become immersed in the exciting task of participating in evolving and elaborating a body of scientific knowledge specific to nursing did their motivation for doctoral study begin to take on scholarly significance.

Monies in support of doctoral study by nurses, both from Federal and from private sources, was a further factor in making it possible for a larger number of students to engage in full-time study.

By 1965, 82 students were enrolled for doctoral study at New York University of whom approximately 47 percent were full-time students. This year 41 full-time and 60 part-time students are engaged in studying for the Ph.D. degree with a major in nursing. These students range from those who are enrolled entirely in course work to those who are completing their doctoral dissertations.

Students continue to meet the same requirements for admission, achievement, and graduation as do other doctoral candidates in this institution but, today, students have as the central core of their doctoral program substantive, scholarly knowledge in nursing; specifically the study of the theoretical basis of nursing. Cognate courses, tool courses, research design and methodology, etc., enhance and enlarge the student's program but justification for the program's existence lies in the science of nursing--a science of whole man.

Our arrival at this stage in the evolution of nursing in its transition from a pre-scientific field to a scientific field is an outgrowth of multiple influences, events, and struggles. The validity of higher education in nursing rests squarely on the identification of an organized body of abstract knowledge specific to nursing and arrived at by scientific research and logical analysis. By definition, nursing, as a learned profession, is both a science and an art. The engrossing task of evolving an organized conceptual system for nursing had been begun. A critical shortage of faculty qualified to engage in such an endeavor was a major problem. Such knowledge was needed to prepare faculty and concomitantly there needed to be faculty equipped to prepare new faculty. The old tale of the chicken and the egg--which comes first?--loomed large. A boot-strap operation got under way.

A basic premise that nursing was a learned profession was in sharp conflict with nursing's traditional and pervasive anti-educationism and general failure to perceive nursing as a socially significant endeavor in its own right. Moreover, despite a small portion of nurses in the nation who recognized that knowledgeable and safe nursing practice required scholars and scientists in nursing for such achievement, there was limited awareness even among this group that theories cannot be developed in a field that does not have an organized conceptual system out of which to derive theories.

Lacking a concept of nursing as a learned profession and a philosophy of nursing as a science compounded by a critical "dependency syndrome" that was abetted by a range of interests outside of nursing, nursing moved to support a dead-end reliance on other fields to provide some sort of a mix that might be used to explain an assortment of technical skills and the fruits of practical experience. Nurse-scientist programs contributed to increasing the numbers of persons prepared in fields other than nursing but were a clear denial of nursing's scientific and professional responsibilities. The development of clinical doctorates in nursing by-passed the essentiality of an organized theoretical base in nursing and substituted a mix of facts from other fields coupled with observation and doing. The elaboration of a science of nursing languished in spite of fine intentions.

At New York University the Division of Nurse Education refused to be beguiled into treading the primrose path to a piece of parchment. We have had no reason to regret this decision and if students are any guide to the wisdom of our decision then we indeed made the right choice. The impact on the nature of research and practice evidenced by undergraduate and graduate students introduced to the science of nursing and the guiding principles derived therefrom is remarkable and effective.

Doctoral study in nursing at New York University is founded upon the belief that nursing is a learned profession (as is true for all of our programs). By definition, then, nursing is characterized by an organized body of abstract knowledge specific to nursing. The science of nursing is an emergent -- a new product. It is not a summation of facts and principles drawn from other sources. Nursing's conceptual system is acquired by reasoning, by creative synthesis. It is a new mode of thinking.

Nursing's science is a science of man: synergistic man, a unified system possessing his own identity. Man is neither an operating collection of systems, organs, and cells nor is he a summation of biological, physical, psychological, and social behaviors. Man exists only in his wholeness. He cannot be described, explained, or understood by studying his parts or the behaviors of his parts. Indeed he cannot even be perceived when the parts are perceived. The conceptual model of man represents a matrix of ideas which in its wholeness symbolizes man. Basic assumptions underwrite its formulation; a synthesis of ideas for a new way of thinking makes of it a connected whole; hypothetical generalizations and unifying principles derive from it.

Education for nursing's scholars and scientists requires that doctoral programs have as their core the critical and creative study of the science of nursing. The elaboration of nursing's theoretical system is dependent on this foundation. The incorporation of nursing science into undergraduate and graduate curriculums of substance requires scholars of nursing for fulfillment.

Michael Palanyi once wrote: "The existence of animals was not discovered by zoologists, nor that of plants by botanists, and the scientific value of zoology and botany is but an extension of man's pre-scientific interest in animals and plants." This might be paraphrased to read: "The existence of man was not discovered by nurses, and the scientific value of nursing is but an extension of man's pre-scientific interest in human beings."

Escalating science and technology, space exploration, and accelerating evolutionary change are forcing new theories of life and the universe. Proponents of humanistic sciences vie with those who support mechanistic explanations of life. Consonant with a negentropic universe, diversity and heterogeneity grow. The complementarity of man and environment belies the modern day shamans who threaten dire effects of cholesterol, cyclamates, nicotine, radiation, etc. at the same time that amphetamines, transquilizers, birth control pills, and fluoridation enjoy concurrent popularity. A so-called expanded role of nurses is equally an expanded role for medical doctors, dentists, bioengineers, clinical psychologists, etc. -- an outgrowth of changing times, technological advances, and public demand for a nature and amount of health services neither available nor yet envisioned.

The need for scholars and scientists in nursing should be beyond argument. The nature of their preparation must be projected within the framework of an unknown future and must be characterized by imaginative and knowledgeable concern for people.

Professional education in nursing, as in other fields, begins with the first undergraduate professional degree. That the first undergraduate professional degree is, in some fields, built atop a general education baccalaureate degree does not change the undergraduate nature of the education. Moreover current trends and recommendations strongly support incorporation of professional education squarely within a baccalaureate curriculum but requiring more time than the traditional four academic years though significantly less time than is presently true for some fields.

Graduate education leading to master's and doctoral degrees has long been an established part of higher education in America. Within recent times there has been extensive mushrooming both in the nature and number of graduate degrees offered in the educational market-place. Medical educators have only lately begun to develop graduate programs of study in medicine that would qualify their members for master's degrees and for the higher doctorates. The Ph.D. degree is being subjected to close scrutiny. Suggestions are rife for a range of substitute academic and professional credentials, generally less demanding in their scholarly requirements than the Ph.D. degree.

Undergraduate, master's, and doctoral programs properly constitute a sequence of increasingly complex learnings. Though each level of learning has its own unity and completeness they also provide the foundation for further learning for those whose goals and abilities are in accord with the continuing pursuit of formal education. The distinguishing characteristics of professional education in any field is the transmission of theory -- not a body of technical skills. This is not to deny the importance of technical skills but rather to make clear that it is nursing's body of abstract knowledge that makes explicit professional education in nursing. It is utilization of this knowledge in service to people that determines the nature of nursing services. It is this body of knowledge that encompasses nursing's hypothetical generalizations and unifying principles -- the descriptive, explanatory, and predictive principles essential to professional practice. It is this body of knowledge that gives substance to nursing's scientific humanitarianism.

Except as some portion of nurses fulfill the rigorous requirements of doctoral study of stature directed toward the elaboration of nursing's theoretical base through pure research in nursing, applied research in nursing will have no source on which to found its examinations of the real world. The Ph.D. degree has long been deemed to represent completion of a theoretically oriented research program of study. It is the appropriate degree for the preparation of nursing's theoreticians and pure researchers. This is not a proposal that the Ph.D degree is the only appropriate doctorate in nursing. It is a proposal that unless there are nurses prepared in nursing for the scholarly responsibilities symbolized by the Ph.D. at its best there cannot be substantive education in nursing at any level regardless of the degree awarded.

A doctoral program of study presumes that the individual brings with him a broad base of general education and a firm foundation in the area in which he proposes to pursue doctoral study. For nurses seeking doctoral study in nursing such an assumption cannot be made. In general applicants tend to be best equipped in the social sciences, moderately prepared in the biological sciences, and startlingly impoverished in the physical sciences. Mathematics, logic, and philosophy only rarely appear on a student's transcript of previous college work. Wide variations characterize applicants' undergraduate nursing majors (although this is less marked among recent graduates) and graduate majors though purporting to be in nursing on occasion are so narrow and technically oriented as to suggest that they more nearly approximate what should have been continuing education for nursing's technically prepared graduates of ADN programs and hospital schools.

In consequence each applicant must be viewed individually. Undergraduate areas of weakness must be shored up. Previous learnings and a student's educational and professional goals must be evaluated. All students are required to demonstrate scholarly competence in research and investigation. Course requirements are planned to meet these goals. Cognate courses are included in the student's course of study with special emphasis on philosophy. Additional course requirements are determined on an individual basis and may include independent study when this appears appropriate.

The Ph.D. foreign language requirement provides for three options, namely: (1) a reading knowledge of two foreign languages, or (2) a reading knowledge of one foreign language and a two semester course in graduate statistics, or (3) a two semester course in graduate statistics and a two semester course in computer science. All students who do not elect to take the two semester course in computer science must complete as a minimum a concentrated, non-credit introduction to computer science offered through the New York University Courant Institute of Mathematical Sciences.

The doctoral dissertation is a significant aspect of the doctoral program. Each student has a three member sponsoring committee appointed at the time the student is ready to initiate work on the dissertation. The chairman of this committee is a member of the faculty in the Division of Nurse Education who herself holds an earned doctorate and is competent to serve in this capacity. It may be of interest to this group to note that for the past two years the chairman of the all-school committee to review and evaluate doctoral research designs has been a member of the Division of Nurse Education faculty. Further, a study of doctoral research designs submitted for the 5-year period 1964-1969 throughout the school and which was undertaken by the Dean of Graduate Studies, revealed that on every dimension examined doctoral designs submitted by students in the Division of Nurse Education had been accorded quality scores superior to any other unit in the school.

Resources of the entire university are available to doctoral candidates in nursing. The undergraduate and graduate schools of arts and sciences are of particular value in providing a range of offerings relevant to nursing.

The present organizational placement of nursing within the administrative structure of the university is unfortunate. However it is hoped that efforts to establish a School of Nursing coordinate with all other schools and colleges within the university may bear fruit in the not too distant future. Despite this problem the Division of Nurse Education does control its professional curriculums within the framework of the university thus making possible scholarly learning in nursing.

# PH.D. IN SCIENCE

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## Introduction

There are at least four types of doctoral programs that should be available to nurses who, like other professionals, have varying career goals for which they seek educational preparation at the highest level. They are: (1) programs leading to doctoral degrees in nursing (doctor of nursing arts or science) denoting preparation primarily for exquisite, scholarly nursing practice in a relatively narrow field of specialization, (2) programs leading to the Ph.D. degree in nursing denoting preparation for research and theory development exclusively in nursing, (3) programs leading to professional or research degrees in other, particularly relevant practice fields such as education, systems or operations research, and health care administration, and (4) programs leading to the Ph.D. degree in disciplines relevant to nursing practice and to the nursing profession.

It is the task of this paper to set forth an argument in support of having nurses take advantage of education at the highest level of scholarship (including post doctoral study) in natural and behavioral sciences basic to nursing and applied in nursing practice. The scope of this paper does not include justifying Ph.D. study in basic disciplines significant for the nursing profession _qua_ profession; however, the point should be made that nursing needs some able nurses who are philosophers and historians educated through programs leading to the Ph.D. in those disciplines.(1)

## The Need for Nurse-Scientists

Justification for having some nurses become scientists derives from the well supported assumption that every nurse-practitioner needs to have his practice guided by verified knowledge (science), or at least by theories that have been reasonably well supported. Scientific inquiry is the most reliable means yet discovered to test hypotheses that are derived from or that hold promise of contributing to the formulation of theories that ultimately contribute to the structure of verified science. Preparation of competent researchers to conduct such inquiry is most efficiently accomplished through their completing programs of formal education leading to the university research degree, the Ph.D., along with post-doctoral study. Hopefully, a large percentage of nurses who are privileged to earn Ph.D. degrees will become productive investigators.

There seems to be little question about the need for verified nursing science or about the need to continue developing and testing promising theories useful for nursing practice. There seems also to be general agreement that some nurses should be theorists and scientists engaged in systematic inquiry. At issue in the minds of some persons is whether Ph.D. programs pursued by nurses should be in nursing or in disciplines whose principles, concepts, and theories are applied in nursing practice. It is necessary for nursing to support both types of Ph.D. programs and for financial support from multiple sources, including the Federal Government, to be available to nurses during the time they are engaged productively in such scholarly endeavor. Further, Federal support, along with other types of support, should be available to higher institutions whose faculties are engaged in educating nurses through Ph.D. and post-doctoral programs of study. It is to be hoped that development of Ph.D. programs in nursing will complement rather than supplant opportunities for selected nurses to study in fulfillment of requirements for Ph.D. degrees in natural and behavioral sciences.

Nursing needs an expanded research effort.(2) The sine qua non of such effort is the availability and support of able nurse investigators. The number of nurses having sound research training in nursing can be expected to increase gradually in the years ahead, as qualified faculty become available to teach them. There will, however, always be need for some nurses to have research training in disciplines relevant to nursing. Support for this position derives from the following considerations: (1) from the fact that nursing is an applied science needing investigators competent in the several sciences relevant to nursing practice, (2) from the need for nurse investigators to be competent to use, adapt, and develop research procedures, tools, and devices requiring knowledge of basic sciences, (3) from a set of practical circumstances, and (4) from the rather generally accepted notion that advancement of knowledge is a desirable goal to which all able persons should have opportunities to contribute in accordance with their interests. For the health professions, at least, advancement of knowledge has a concomitant goal -- the improvement of practices and of care provided people.

## Nursing - An Applied Science

Nursing is a field of professional endeavor whose practitioners have jurisdiction over particular phenomena and perform functions requiring use of knowledge (science) characterized as "basic" as well as application of nursing science.

By definition, all health disciplines are applied sciences -- with some of the knowledge used in the several fields being common to all, while some is unique to each. Dentistry, medicine, and nursing, for example, are fields that require application of some knowledge about people that is generally useful to all practitioners in the three professions. Each field, in addition, has its own unique body of knowledge. To illustrate, dental science is not merely applied biology, chemistry, pharmacology, physics, psychology, and geology, just because knowledge from all of those disciplines is useful in dental practice and applied by dental practitioners. Dental science is made up of theoretical and scientific formulations unique to the field of dentistry. Similarly, nursing science is not merely an amalgam of principles and theories from relevant "basic" sciences.

Although each health professional deals with man as a biological, psychological, and social being, each has need for knowledge of a particular kind that is applied in the resolution of problems that lie within the province of the practitioner in question. The scope of nursing science is determined by conceptualizing the nature of nursing and the central focus of nursing practice and by identifying the knowledge required for the art of that practice. The essential core of nursing science must, of course, be constantly updated as new discoveries are made and as technologies are refined. Recognition must also be given at all times to the somewhat flexible and expanding boundaries of professional practice so that the science of the field is extended, as appropriate.

The central focus of nursing -- for its practice, education, and research -- is care provided people who need help in coping with problems that lie along the health-illness continuum. Nursing interventions deal with man as an entity. They are designed to advance his health-seeking behavior, to motivate him to avoid disease and disability, and to promote his coping behavior with regard to overcoming actual or potential threats to his health, function, and productivity. Conceptualizing nursing practice as service of a particular kind points up the need for nurses to have command of knowledge of man as a physiologic, and social being affected by genetic, developmental, cultural, and environmental forces. They must also have command of knowledge about pathologies, injuries, infirmities, diagnostic procedures, and therapies.

It has been only in the relatively recent past that the general public, professionals in nursing, and those in health fields allied thereto are becoming convinced that nurses should have jurisdiction over those aspects of man's behavior that relate to his seeking health, to his avoiding disability and dysfunction, and to his seeking restoration in circumstances when physical and emotional illnesses, trauma and crises are encountered, and when he is undergoing differential medical diagnoses and a host of medical therapies.(3,4,5,6) To have jurisdiction and authority carries concomitant responsibility. In these circumstances responsibility can be conceived to include: (1) determining the usefulness of theoretical constructs from "basic" disciplines for nursing practice and (2) developing promising theoretical formulations that are uniquely useful to practicing nurses. To fulfill both of these responsibilities at least some nurses must know the content, language, approaches, and techniques of "basic" disciplines and the significance of behavior (interpreted in the broadest sense) as it is manifested by man who, as a valuing, rational, sensing, acting, and reacting being, uses both voluntary and involuntary mechanisms as he copes with problems that lie along the continuum of health and illness.

It is a truism that man is a complex being. Approaches to the study of man must be guided by theoretical constructs if such inquiry is to be productive. Although attempts to develop grand theories of man are ongoing and should be supported, concepts, techniques, and approaches of scientists in the basic disciplines are useful for investigating important nursing questions. It is essential that inquiry with regard to those questions be conducted by investigators who first of all will be led to ask them and secondly, will have the knowledge and skill to approach them skillfully, within pertinent theoretical frameworks and using appropriate techniques. In addition, investigators must be able to interpret their findings in the light of existing knowledge. Nurses prepared as scientists in the basic disciplines must be relied upon to fulfill those responsibilities.

No one would doubt that the accretion of knowledge in natural and behavioral sciences has been monumental. It is no more appropriate to expect nurse investigators to be knowledgeable in all disciplines relevant to nursing than it is to hold such expectations for physicians and dentists engaged in the research effort. Increasingly professionals who are investigators in each of the health fields will seek intensive preparation in relevant disciplines in order to have knowledge and skills needed to pursue their own research interests. Some of those investigators will advance and refine knowledge basic to and applied in their respective practice fields; others will contribute to the development of sciences unique to their respective professions.

Nursing as other applied fields, must rely in large part upon able investigators thoroughly prepared in the basic disciplines and committed to engage in research with a view toward expanding and refining nursing science. This assumes, of course, that nurse-scientists prepared in anthropology, biology, sociology, psychology, and their respective relatively narrow specialties will be led to inquire into phenomena that are important to nursing. This effort can develop only as nurse-scholars become available and as they have their research interests fostered and supported.

Opportunities for research exist in at least a few nursing schools where research is conducted by both faculty and students. In those settings research is enhanced by the collaborative efforts and wisdom of nurses who are also natural and behavioral scientists. In those settings, the collaborative effort makes possible critical analysis of the assumptions underlying approaches and techniques utilized by basic scientists and by nurses holding Ph.D. degrees in nursing and in other fields; such collaboration holds promise of developing sound and creative new approaches to the study of nursing questions.

## The Problem of Criterion Measures and Techniques of Inquiry

The criterion question as it relates to inquiry in nursing has been of concern for a long time; it is still pertinent. The theorist-investigator in a practice discipline cannot be content with merely advancing and structuring knowledge for its own sake, because ultimately the purpose of research in all of the health professions is to improve services provided people. Thus the criterion question is of utmost significance to those whose antecedent action is expected to produce desirable consequences. Although nurse investigators eventually will develop numerous unique approaches to assess people's actions, reactions and transactions as well as the consequences of nursing action, there is no need to deny the existence of human mechanisms that are physiologic, and social in character and those that are believed to be significant for nursing. The nurse-physiologist perhaps most convincingly illustrates the need to have nurse-investigators master the basic discipline and its approaches to research. It seems appropriate to continue to rely on physiologists having knowledge of biological mechanisms and techniques of measurement to assess people's reactions to stressors and to select indicators appropriate to determine the physiologic consequences of nursing action designed to achieve specific outcomes. It is doubtful if investigators prepared other than through Ph.D. study in physiology could have the depth of knowledge and skills that will continue to be needed for making such important research decisions. It is also doubtful that physiologists who are not nurses will have interest in studying questions of particular concern to nurses. Thus it is appropriate to continue to prepare nurse-physiologists who can be expected to do research and to guide others in conducting important investigations that are of significance for the profession. A similar argument can be presented for preparing nurse-investigators who are knowledgeable in other basic sciences and who have command of technologies, methodologies, and approaches to inquiry attained through such preparation.

It could be argued that Ph.D. programs in nursing require students to complete courses in relevant biological and/or behavioral sciences; such requirements surely are appropriate. The point here made is that the focus of Ph.D. study in nursing will (and should) preclude *extensive* preparation in relevant disciplines. For that reason some nurses should continue to become basic scientists in order that their talents will be available to enhance the research effort in nursing and to assist in the structure of nursing science. Each nurse so prepared can be expected to make contributions to advance his field of basic science while investigating important nursing questions; thus he will make significant contributions to both fields.

## Questions of Practicality

Issues of practicality provide the third cogent argument in favor of supporting doctoral preparation in basic sciences for nurses who anticipate pursuit of scholarly work, including research.

The question of practicality relates in part to the availability of nurse scholars. There simply are not enough nurse faculty members who are themselves prepared through doctoral study to fulfill legitimate and urgent demands for their services. Although nurse faculties are notorious for attempting (and often accomplishing) assignments that would be considered impossible by others, the paucity of faculty competent to offer doctoral study is a well documented fact.

It was not until the mid-1950's that nurses in any substantial number sought doctoral preparation. Two significant programs of financial support undoubtedly were factors stimulating that development. They were the special pre-doctoral fellowship program offered through the Division of Nursing of the United States Public Health Service, and the National League for Nursing's Fellowship program supported by a gift from the Commonwealth Fund.(7,8) Subsequently, nurse-scientist training programs were established in several universities with support from Federal funds.(9,10)

The most recently conducted inventory revealed that early in 1970 there were only 587 nurses who held earned doctorates.(11,12) Of those whose names appear in the directory very few were reported to have earned their degrees prior to 1955. To have almost 600 nurses earn doctorates within a 15-year period is undoubtedly a remarkable achievement within the profession; moreover, the Division of Nursing recently reported that a substantial number of nurses are currently enrolled in programs of study with the expectation of fulfillment of requirements for doctoral degrees. In spite of this progress, however, all nurses prepared at the doctoral level do not hold faculty appointments.

It is a fact that very few nursing schools have been able to appoint substantial numbers of faculty who hold earned doctoral degrees. Expectations held for those appointees include their conducting research, guiding doctoral and master's students in the conduct of research, practicing and teaching clinical nursing, theorizing, writing, consulting, and administering educational, health care, and research programs. It is important to recognize that even though nursing is a profession-in-a-hurry to become a learned discipline (through commitment on the part of some of its scholars to give leadership in promoting research, theory development, and programs of doctoral study), this goal can be accomplished only if basic science departments of graduate schools share with nursing faculties the responsibility for preparing nurses who are also scientists and investigators.

Judicious timing of the development of Ph.D. programs in nursing is a particularly important decision to be made by leaders in the profession. Those settings in which there are substantial numbers of faculty holding Ph.D. degrees in basic disciplines should be expected to give leadership in the advancement and structure of nursing science through research; they will also probably offer the most promising settings in which to develop Ph.D. programs in nursing. Such program development should be encouraged. Premature development of such programs in settings where faculty talents are inadequate, however, would be detrimental to the advancement and structure of nursing science as would undue delay.

A second practical consideration lends additional support for the position that the profession should continue to support nurses who will earn Ph.D. degrees in basic disciplines. That consideration gives recognition to the speed with which knowledge is generated and technology is advanced in each field of human endeavor.

There is little question that knowledge will continue to accrue at exponential rates. It is imperative that advances in basic sciences relevant to practice be incorporated into nursing education programs in order that practice will properly reflect those changes. Since nurses will always have to keep current in sciences, the profession must rely on nurses who are also scholars and investigators in those disciplines to update the scientific base of nursing school curriculums so that students and practitioners will not be handicapped by inadequate or outmoded science.

The practicality of science itself provides the third argument for continuing to have some nurses earn Ph.D. degrees in basic disciplines. A scholar who holds a Ph.D. degree in a basic discipline can utilize concepts and theories from that discipline to investigate a wide variety of problems pertinent to nursing. To illustrate, problems of nursing practice, nursing education, and nursing administration can be investigated by conceptualizing the family, the nursing school, and the hospital as social systems in each of which actors play particular roles and exert influence on one another. The nurse-sociologist thus has the armamentarium with which to pursue numerous investigations that could capture his interest throughout a varied professional career. To illustrate further, a team of nurse investigators prepared in a variety of basic disciplines could investigate important nursing problems (such as pain or incontinence) simultaneously within physiologic, psychologic, and sociologic conceptual frameworks. It is proposed that findings from such research might be more illuminating than would they be if the problem were investigated within a single frame of reference. The practical significance of such research is obvious.

A fourth practical consideration relates to the promotion of collaborative inquiry. There is little doubt that as knowledge advances in all fields ways must be found to enhance collaborative research efforts. Nurses who are also scientists in the basic disciplines can be expected to hold appointments in nursing schools and in university departments simultaneously and thus have continuing colleagueship with nurses and other scholars. Such associations can be expected to accrue benefits both to the disciplines and to nursing as interactions of scholars stimulate the research effort and the generation of new theoretical formulations.

## Advancement of Knowledge as a Goal

Promotion of the research effort is based upon the assumption that to know is better than not to know. Motivation to pursue philosophic and scientific inquiry derives from man's need to find a unified view of the world in which he lives and to comprehend the order that is assumed to exist. Although fields of knowledge have to date had reasonably well defined boundaries, some are less secure than they were in the past. It is conceivable that knowledge of man and of the world in which he lives can eventually be comprehended as a unified whole. Efforts in that direction should certainly be encouraged and supported. In the interim, however, progress can continue to be made in the advancement of knowledge by investigators guided by theoretical constructs derived from knowledge of biological, social, and psychological man. Some nurses should be privileged to pursue Ph.D. study in the basic sciences because their research may contribute information that is directly or indirectly, immediately or more remotely useful to nursing practice; others should pursue Ph.D. study in basic sciences because their scholarly work may eventually contribute to finding a unified view of man and his world. Both are worthy objectives. Attainment of both objectives will contribute to the structure of nursing science and to the improvement of nursing care.

Experience to date should shed some beginning rays of light on the question of whether or not nurses prepared at the Ph.D. level do indeed find opportunities to engage in research and the extent to which they are in fact productive scholars. Data available should also reveal the extent to which nurses who are also scientists in the basic disciplines have sought and been accorded colleagueship with other basic scientists and with other nurses engaged in the advancement of nursing science. Inasmuch as nursing's goals include the promotion of research and theory development and the structure of science that is useful for the improvement of nursing care, evaluation of efforts to date should be instructive.

Nursing, to date, has enjoyed only modest success in developing its research programs, although progress has been made in spite of overwhelming obstacles. At the beginning of the past decade at least moderate support was becoming available to nurses wishing to be prepared as investigators, to those needing funds for research endeavors, and even to a few schools identified for their potential in advancing the research effort. Unfortunately, the close of the decade of the sixties brought sharp curtailments of public and private funds to support nursing's research thrust and financial constraints in employment settings as well. Such restrictions could not have been more ill-timed for nursing whose research efforts were just beginning to develop and expand.

It is to be hoped that the future will see renewed opportunities and challenges for the nursing profession with regard to its research effort and that crippling curtailments on funds to support scholarly endeavors will not continue. Sponsorship of a conference that anticipates numerous directions for doctoral education and research training available to nurses would seem to convey confidence in the future as well as confidence in nurses prepared through sound education to engage in research and to generate knowledge useful for improving the lot of mankind.

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Extended Remarks re paper: "Ph.D. in Science."

My invitation to this conference included a request that I summarize my paper in a 10-minute period. I hope I may be forgiven for extending my written remarks instead -- on the assumption that you all have read my paper and on the assumption (however tenuous) that its purpose was attained.

It was in the mid-18th century that Emanual Kant admonished investigators as follows:

> To yield to every whim of curiosity, and to allow our passions for inquiry to be restrained by nothing but the limits of our ability, this shows an eagerness of mind not unbecoming to scholarship. But it is wisdom that has the merit of selecting from among the innumerable problems which present themselves, those whose solution is important to mankind.
> (Dreams of a Ghost Seer, 1866.)

With characteristic wisdom and vision, Miss Scott reminded us in her invitation to participate in this very important and timely conference, that nursing must ultimately be concerned with improving care provided people, and that somehow this objective is related to the goal of scholars who aim to structure nursing science through systematic inquiry. It is instructive to remind ourselves of the very productive and indeed inextricable relationship between theory and practice. John Dewey pointed up the value of theorizing in making practical life "rich and progressive" when he wrote:

> ...exclusive preoccupation with matters of use and application so narrows the horizon as in the long

> run to defeat itself. It does not pay to tether one's thoughts to the post of use with too short a rope. (How We Think, 1910, p. 139.)

It is appropriate that those shaping the destiny of the nursing profession give thoughtful consideration to theory development and to the structure of nursing science. Let us, therefore, be unrestrained in our thoughts about the preparation of nurse scholars upon whom the profession must depend for systematic inquiry that both yields and tests promising theories that eventually form the building blocks of nursing science.

We all know that to advance research our bets must be placed on individuals who are well trained, those who have a passion for scholarly work, and those who have the time, encouragement, and resources to accomplish their own goals. This combination of circumstances will likely continue to be found in academic settings or in research institutes affiliated with higher institutions. I am highly optimistic that resources to support inquiry will soon again be forthcoming; thus it is particularly timely to discuss approaches to the preparation of scholars in the profession of nursing.

My own view is that nursing has characteristically and all too frequently dichotomized important issues and then chosen a single alternative -- espousing it as somehow "right." It must be clear to you that the position I defended as one of the future directions of doctoral education for nurses is only one of several that I could have defended had I been invited so to do. I am indeed enthusiastic about developing Ph.D. programs within the discipline of nursing -- and now -- in those settings having the personnel resources that are essential. My plea is that we not deny the need to have some nurse-scholars prepared in the basic disciplines, now and in the future, for the several reasons I outlined. Two additional arguments should be made explicit.

Firstly, doctoral education can be relied upon only to provide nurses (and others) with an approach to continued learning and scholarly endeavor through inquiry. The pay-off from their educational preparation can come only with their continued productivity in their work settings. Developing a research climate in nursing cannot occur over night. Members of our profession are impatient and sometimes harsh in their criticism of the slow pace with which nursing science is being structured. Investigators in our field, of course, must be productive and they must subject their work to review by their peers. We have, however, had only about a decade in which to demonstrate the value of inquiry. My plea would be to continue to be supportive of all investigators and potential nurse-scholars and not to act arbitrarily and summarily to deny them opportunities for doctoral preparation that will prepare them to be investigators. More time is needed to demonstrate the value of the pluralistic approach that is appropriate for our time.

In making this plea I wish to make explicit my belief that funds in support of nurses who are expected to advance the profession should not be diverted to enable them to pursue a second practice field. I believe we must come to grips with this problem. I believe that the resources available to the Division of Nursing should not support nurses preparing for a different field of professional practice, such as medicine, clinical psychology, or rehabilitation counseling.

I am encouraged to make my second point explicit by the many conversations I have had with nurses who study in the basic disciplines. They confirm Dr. Matarazzo's observation about the relative paucity of theoretical formulations in all newly developing fields of advanced study. Repeatedly I have been impressed with the self respect and respect for the profession of nursing that is enkindled or re-kindled within those whose inside look at other disciplines while they are doctoral students leads them to recognize that the science of nursing as well as the science of their new field of study is relatively primitive and insecure. With sound research training of scholars, science generally will be advanced. I have confidence that nurses will contribute their share if they have opportunities to move in several directions in their pursuit of doctoral education.

Perhaps the point should also be made that now is the time for nurses to be opportunistic and to take advantage of the reduction in number of doctoral candidates in the basic disciplines to demonstrate that intellectual capacity is indeed equally distributed between the sexes and to show that the alleged natural superiority of women can in fact be demonstrated.

# CLINICAL DOCTORATE

Miss Reva Rubin and Dr. Florence Erickson
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A new science is the product of an intellectual environment. Although schools of nursing were established in colleges and universities fairly early in the twentieth century, the prevailing academic efforts in the study of behavior during the first half of this century objectified into the clearly discernible stimulus--response effects. Although nurses could, and still do, "apply" principles, procedures and treatments, the outcome was somewhat better in terms of reinforcing a belief system of objectivity and rational order in nursing than in patient care, recovery and comfort. Teleological explanations were eschewed in nursing as well as in other disciplines as subjective and therefore, somehow, improper. Emotions, wishes, hopes and fears of patients, as well as of nurses, were denied as irrational obstructionism to scientific objectivity. Nursing as a science could not thrive in this intellectual climate that did not correspond with the reality of patient care situations.

Attempts to remove care from the vicissitudes of the patient and the situation into the controlled and controllable laboratory proved unrewarding. Other, more amenable avenues for S-R operationalism opened in education and in administration. Careerists in nursing were drained off from patient care and the environment in which care is given and received. The drainoff of the educated career nurse produced a static, replicative practice in the nursing care of patients.

With the opening of new fields of intellectual inquiry at the end of World War II, the intervening variables of emotion, conation and cognition began to be credible and eminently researchable. The subjective, experiential and socially interactive behaviors became legitimate subjects of study. Controls and objectivity were more correctly re-located within the observer rather than in the situation or field of study. Gestalt and Systems theory provided conceptual vocabularies for dealing with background as well as foreground interlocking relationships for investigating behavior in ongoing life situations. Cybernetics and information theory extended the range of possible observable messages; cybernetics and statistics extended the possibilities of multifactorial, multilinear and sequential series data analysis.

The larger intellectual environment provided a pooling of analytic theory for selection, linkage and crossover within and among biosocial and psychosocial disciplines. A vital discipline in nursing, wholly compatible with its morality, purpose and commitment, became possible. The academic freedom within departments of nursing fostered intellectual pursuits anchored in nursing, that were neither wholly dependent upon nor subsidiary by-products of other departments, schools, or disciplines.

It was under these conditions that the senior professors in the two Departments of Pediatric Nursing and Obstetric Nursing at the University of Pittsburgh School of Nursing chose to extend their experience in clinical research, teaching and practice to colleagues in nursing in a program of study and directed research training leading to the Doctorate of Philosophy. Each of the fields in nursing, Nursing Care of Children and Maternity Nursing, was generating its own relevant sets of questions and its own sets of methodologies.

The decision to combine efforts between departments was an instrumental and heuristic device to maximize scarce resources of faculty expertise. Substantively, there is no "combination" of the two respective fields. The search for commonalities between maternity nursing and pediatric nursing has been consistently avoided as a pursuit of extremely dubious merit. The search for commonalities leads to the least common denominator, a tenuously thin bond that provokes facile answers for which there were no questions. Preclusive answers and premature synthesis are inimical to investigation and to the production of new knowledge. Biologically, socially, psychologically, cognitively, and situationally, mothers and children are different. The differences are irreducible.

The interrelation and interdependence of mother and child change over time in relation to conditions and situations and provide legitimate areas of investigation by either pediatric or maternity nurses, but rarely by both together. The primacy of the clinical problem generating consultation, study or investigation opens a discrete but salient area of inquiry. The shared interest by both pediatric and maternity nursing in problems and findings in mother-child relationships is much more than a casual interest. However, what is salient and instrumental to one specialty in nursing, is background material for the other. Good questions are often generated in the sharing process, but the goodness of the question is in and of the particular clinical field.

The decision to open a doctoral program necessitated curriculum revision at the master's level in order to delineate out content and courses that were terminal or primarily position- preparatory in nature. It was recognized that the largest number of students would terminate their graduate work on completion of requirements for the master's degree. But it was essential that the master's level course and clinical work not be terminal. Using the measure of what courses and content were essential and creditable for advanced work beyond the master's level, the curriculum was restructured. School-wide "core" courses were agreed to be pre-requisites for specialization and therefore located in the first term with other pre-requisites to clinical work. The fourth and final master's term consisted of thesis and free electives for functional courses. The two intervening terms were designated as the two clinical terms for course work and study of patients and their care.

The restructuring of the curriculum made it possible to provide adequately for the preparation leading to the Master of Nursing degree after four terms. Students with such preparation could, if they so chose, proceed for doctoral work in their nursing specialty at a later date. It also made it possible for students holding a master's degree from another institution to omit all of the fourth term and to meet some of the pre-requisites of the first term by transfer of credits. In this way, course requirements for candidacy for the Ph.D. could be met after 6 terms or 2 calendar years.

The graduate program leading to the Doctorate of Philosophy is designed to articulate with the base of undergraduate nursing education. The introductory overview of all specialties in nursing is a prerequisite for specialization at the graduate level. Deficiencies in undergraduate preparation must be removed; students from foreign countries without discrete deficiencies are usually required to repeat the undergraduate introductory level of specialization. College transcripts and State Board results are used to assess undergraduate level attainment.

Professional experience, preferably in the chosen area of specialization, beyond the introductory undergraduate level is mandatory for admission for specialization at the graduate level. Academic advancement in the nursing profession requires synthesis in the varieties of experience of practice to open professionally relevant questions and to permit advancement in learning. As undergraduate schools continue to reduce the introduction to each area of nursing to the purely nominative level, with synthesis between areas in nursing predisposing to premature conceptual closure, the nature and extent of professional experience subsequent to baccalaureate preparation may have to be reexamined. At present, however, there are sufficient numbers of graduates from good schools to permit admission of the exceptionally promising applicant with year of professional experience. The applicant with a great deal of nursing experience and little or no academic work beyond the introductory level and the applicant who has had only academic work and little or no professional experience are equally bad academic risks at advanced levels of graduate work.

The expectation from the undergraduate, first level preparation in nursing is the location of the patient; the conditions under which a person becomes a patient, the methods and their implications in the relief of the disabling or limiting condition and ways in which to assist in the promotion of the patient's treatment and recovery phases. Advanced academic nursing elaborates on this first level of nursing with increasing precision in analysis, definition and effectiveness.

The expectation from post-baccalaureate clinical practice is the location of self as a professional nurse: in action and interaction with patients, in the continuities and discontinuities of their care, in maximizing resources of knowledge on behalf of patients, and in responsibility and purpose for action or inaction.

With the location of self as professional nurse and with the location of a specific patient population for nursing care, there is readiness for advanced professional academic work at the graduate level. Departmentalization for advanced work provides a community of professional and scholarly interests and pursuits for graduate students and faculty.

A research oriented approach is used throughout graduate work. Advanced work at the first or master's level of graduate study leading to specialization requires the conceptual tools and disciplines of systematic inquiry and presentation in order to specialize. There seems to be no tenable rationale for the dissociation of content and research methodology in advancing clinical work.

Students tool up with introductory statistical and research methods before joining their respective faculties in clinical work. Students work directly with their professors in patient care. Clinical settings are normative patient care settings in the hospital, outpatient and home settings. Sampling techniques for patients as subjects of study, for stages or conditions, and for situations are anchored in problems of nursing care. Observations are made independently and under faculty supervision. Interview and other observational techniques are developed in relation to patients, their conditions and situations and in relation to the questions involved. Data and findings are tested and retested within and between patients, conditions and situations. Experimental, naturalistic, historical, and prospective designs are used eclectically in patient care under faculty direction and supervision.

The real and potential research possibilities in clinical nursing cannot be adequately indicated. To the clinical practitioner cum researcher, there is a high level of excitment in opening new avenues of salient inquiry with a broad repertoire of methodologies from which to select for good fit while actively engaged in professional nursing.

Without actual involvement in patient care and study and without faculty guidance, supervision and direction in patient care situations, clinical research would not eventuate. It does require a highly skilled and sophisticated nursing faculty. It does require a rich variety of clinical patients, settings and situations in specialized hospitals. It does require academic freedom compatible with the therapeutic imperative.

Observational protocols, content analysis, measurement and levels of analysis are progressively developed under faculty direction and supervision. The clinical findings are pooled with findings from other disciplines to form the current body of clinical knowledge. The current body of clinical knowledge is then re-cycled for further clinical practice and investigation.

Directed clinical care and research constitutes more than half the curriculum at the master's level and more than a third of the curriculum leading to candidacy for the Ph.D. By the time a student reaches candidacy she has had a minimum of one academic year of supervised clinical research and can select for her major advisor a faculty member with whom she has worked to guide her in her independent and original research and dissertation. The communality of shared interests and experiences between candidates and advisors is conducive to completion of the research with salience in clinical nursing and rigor in scholarship.

## UNIVERSITY OF PITTSBURGH
## GRADUATE PROGRAMS IN MATERNAL-CHILD NURSING
By Major and By Year

| Year | Maternity Nursing | M.C.N. | Pediatric Nursing |
|---|---|---|---|
| First | | Dynamics of Behavior<br>Research Methods<br>Statistics | |
| | Cultural Anthropology | | Child, Birth to Five Years |
| Clinical Term | Maternal Identity I<br>Pregnancy<br>Labor and Delivery<br>Postpartum<br>Adolescence | | Child in Illness and Hospitals<br>Infant<br>Toddler<br>Pre-School<br>School Age Child |
| Clinical Term | Maternal Identity II<br>Infancy and the Puerperium<br>Baby, first year<br>Mother-child dyad<br>Family | | Child in Illness in Hospital and in Community<br>Early Latency<br>Latency and Pre-Puberty<br>Puberty and Adolescence<br>Dynamics of Adolescence |
| Second | | Advanced Statistics(x2)<br>Cognitive Theory (Seminar)<br>Genetics<br>Social Class<br>Families in Stress (Seminar) | |
| | Social Psychology*<br>Social Change<br>Body-Image (Gynecology)*<br>Clinical Teaching*<br>Special Projects (Pilot Studies)* | | Family and Culture*<br>Emotionally Disturbed Child*<br>Mental Retardation*<br>Special Techniques in Studying Children*<br>Special Projects (Pilot Studies)* |
| Third | Demography or Systems Analysis<br>Guided Readings*<br>Individual Projects*<br>Research Design | Developmental Theory (Seminar)<br>Body Image (Seminar) | Electives in Child Development<br>Guided Readings*<br>Individual Projects*<br>Research Design |

Satisfactory performance in the comprehensive examination is required on completion of the two clinical terms before advancement to either the final term for the master's degree or to further study for the doctorate.

Originally further study at the doctoral level was programmed through University wide departments offering relevant biosocial or psychosocial graduate content and methodology. The expected outcomes did not materialize. Content changed with professors and departmental interests. A highly useful course one year would become irrelevant the next year with a change in faculty. Departments would reorganize to drop some content areas in favor of others more interesting or more feasible for that department. Where departments, such as biogenetics, were stable and developing, work in content and methodology was continued. But the direction has been away from dependence on other departments toward increasing intradepartmental offerings in content and methodology. It is here where the two departments, maternity and pediatric nursing, combine efforts for maximal effectiveness.

The first joint departmental seminar was opened in 1964. Three other seminars were opened in the next 3 years. The substantive content was determined by the professors in each clinical area in terms of relevance and generativity for nursing research. Bibliographies, revised each year, are composed of selections from the biological, social and psychological fields organized and brought to bear on relevant areas in nursing. Somewhat loosely, the seminars could be described as being predominantly psychological (2), social (1), and biological (1). Actually, there is no such segregation by field, but a mix of fields in a loose encompassive ordering to open areas of relevant inquiry, to provide naming of phenomena observed, to examine constructs and theories, and to study methods suitable for attacking various problems. Seminar discussions are led by the professors in each department jointly and seminar papers are read by the same professors.

Students who are stimulated to pursue farther any of the areas opened in the seminars can elect to take advanced work such as courses, guided readings or individual work under faculty in their own or other departments. Some of the subjects already pursued as a result of seminar work are sleep patterns and disturbances, body image and body boundaries in relation to surgery, interpersonal space under stress, communications under visual sensory deprivation, parental anticipatory grief, non-institutionalized support systems, feeding and eating under dyspneic conditions. All of the further studies so far have resulted in research proposals.

More recently, the advanced tool courses in statistics and research have been revised. For the foreseeable future, the minimum two terms of advanced statistics will be continued to be offered in the School of Education. But research design and writing of proposals and dissertations has presented more immediate problems. A series of three research seminars has been opened this past year offered jointly by the two departments, for students admitted to candidacy.

Admission to candidacy is granted when doctoral students have successfully passed the doctoral level comprehensives in their own field of nursing, maternity or pediatrics, submitted a proposal for research and have met the language requirements. The requirement of a foreign language is a departmental requirement, not a University requirement. Academic discipline in the study of a foreign language seems to enable the student to conceptually discern, sort, restructure and transform symbols. If a student has had this disciplined practice in high school or in college, this is preferred. Otherwise, this discipline in thinking is necessary as soon as possible for the doctoral level course work.

Dissertation committees are interdisciplinary with a simple majority in nursing. The major advisor serves as chairman and approves the selection of committee members from the Graduate Faculty by the candidate. Many, but not all committee advisors hold joint appointments in the Departments of Pediatric and Obstetric Nursing. Joint appointments are at the professional level, entail teaching responsibilities as well as dissertation advisement and are in the fields of psychology, anthropology and child psychiatry.

In summary, nursing is not conceptualized as a closed system of practices but as an open system interpenetrating with medicine, the biological and behavioral sciences to generate its own avenues of inquiry and its own criteria of salience relevant to patient care. The origin and destination of systematic investigation is in the nursing care of patients. Clinical practice, clinical teaching and clinical research are inseparable components in academic nursing at progressively higher levels.

The faculty, within its clinical departmental unit, is in the optimal position to generate advancing content and methodology, to stimulate, to train and to direct graduate students and to monitor the quality and direction of research. Research originating in clinical nursing and open to examination by colleagues in the same area ensures against banality or naivete. Much of the research is descriptively analytic. Naming and defining the parameters of biosocial and psychosocial phenomena in nursing may well be the major contribution of University centered nursing research.

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